

# EXHIBIT G

## FDP Cost Reimbursement Subaward

Federal Awarding Agency:	Other [Type in Agency]	U.S. Department of Transportation
Pass-Through Entity (PTE):	<b>Subrecipient:</b>	
<b>University of Southern California</b>		The Regents of the University of California, Davis
PTE PI:	Marlon Boarnet	
PTE Federal Award No:	69A3552348309	
Project Title:	Pacific Southwest Region University Transportation Center (PSR UTC) Consortium, 2022 - 2026 Grant	
Subaward Budget Period:		
Start: 06/01/2023	End: 05/31/2024	Amount Funded This Action (USD): \$ 245,000.00
Estimated Period of Performance:		
Start: 06/01/2023	End: 05/31/2024	Incrementally Estimated Total (USD): \$ 245,000.00

### Terms and Conditions

1. PTE hereby awards a cost reimbursable subaward, (as determined by 2 CFR 200.331), to Subrecipient. The Statement of Work and budget for this Subaward are as shown in Attachment 5. In its performance of Subaward work, Subrecipient shall be an independent entity and not an employee or agent of PTE.
2. Subrecipient shall submit invoices not more often than monthly and not less frequently than quarterly for allowable costs incurred. Upon the receipt of proper invoices, the PTE agrees to process payments in accordance with this Subaward and 2 CFR 200.305. All invoices shall be submitted using Subrecipient's standard invoice, but at a minimum shall include current and cumulative costs (including cost sharing), breakdown by major cost category, Subaward number, and certification, as required in 2 CFR 200.415(a). Invoices that do not reference PTE Subaward number shall be returned to Subrecipient. Invoices and questions concerning invoice receipt or payments shall be directed to the party's **Financial** Contact, shown in Attachment 3A.
3. A final statement of cumulative costs incurred, including cost sharing, marked "FINAL" must be submitted to PTE's **Financial** Contact, as shown in Attachment 3A, not later than 60 days after the final Budget Period end date. The final statement of costs shall constitute Subrecipient's final financial report.
4. All payments shall be considered provisional and are subject to adjustment within the total estimated cost in the event such adjustment is necessary as a result of an adverse audit finding against the Subrecipient.
5. Matters concerning the technical performance of this Subaward shall be directed to the appropriate party's Principal Investigator as shown in Attachments 3A and 3B. Technical reports are required as shown in Attachment 4.
6. Matters concerning the request or negotiation of any changes in the terms, conditions, or amounts cited in this Subaward, and any changes requiring prior approval, shall be directed to the PTE's **Authorized Official** Contact and the Subrecipient's **Authorized Official** Contact shown in Attachments 3A and 3B. Any such change made to this Subaward requires the written approval of each party's Authorized Official as shown in Attachments 3A and 3B.
7. The PTE may issue non-substantive changes to the Budget Period(s) and Budget **Bilaterally**. Unilateral modification shall be considered valid 14 days after receipt unless otherwise indicated by Subrecipient when sent to Subrecipient's **Authorized Official** Contact, as shown in Attachment 3B.
8. Each party shall be responsible for its negligent acts or omissions and the negligent acts or omissions of its employees, officers, or directors, to the extent allowed by law.
9. Either party may terminate this Subaward with 30 days written notice. Notwithstanding, if the Awarding Agency terminates the Federal Award, PTE will terminate in accordance with Awarding Agency requirements. PTE notice shall be directed to the **Authorized Official** Contact, and Subrecipient notice shall be directed to the **Authorized Official** Contact as shown in Attachments 3A and 3B. PTE shall pay Subrecipient for termination costs as allowable under Uniform Guidance, 2 CFR 200, or 45 CFR Part 75 Appendix IX, as applicable
10. By signing this Subaward, including the attachments hereto which are hereby incorporated by reference, Subrecipient certifies that it will perform the Statement of Work in accordance with the terms and conditions of this Subaward and the applicable terms of the Federal Award, including the appropriate Research Terms and Conditions ("RTCs") of the Federal Awarding Agency, as referenced in Attachment 2. The parties further agree that they intend this subaward to comply with all applicable laws, regulations, and requirements.

By an Authorized Official of the PTE:	By an Authorized Official of the Subrecipient:	
	09/07/2023	Grace Liu
Name: Diana Kapadia	Date	Digitally signed by Grace Liu Date: 2023.09.06 16:46:28 -07'00'
Title: Contracts and Grants Officer		MP Date

Subaward Number:

SCON-00005220

## Attachment 1

### Certifications and Assurances

#### **Certification Regarding Lobbying (2 CFR 200.450)**

By signing this Subaward, the Subrecipient Authorized Official certifies, to the best of his/her knowledge and belief, that no Federal appropriated funds have been paid or will be paid, by or on behalf of the Subrecipient, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement in accordance with 2 CFR 200.450.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or intending to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Subrecipient shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," to the PTE.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

---

#### **Debarment, Suspension, and Other Responsibility Matters (2 CFR 200.214 and 2 CFR 180)**

By signing this Subaward, the Subrecipient Authorized Official certifies, to the best of his/her knowledge and belief that neither the Subrecipient nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, in accordance with 2 CFR 200.213 and 2 CFR 180.

---

#### **Audit and Access to Records**

Subrecipient certifies that it will provide PTE with notice of any adverse findings which impact this Subaward.

Subrecipient certifies compliance with applicable provisions of 2 CFR 200.501-200.521. If Subrecipient is not required to have a Single Audit as defined by 200.501, Awarding Agency requirements, or the Single Audit Act, then Subrecipient will provide notice of the completion of any required audits and will provide access to such audits upon request.

Subrecipient will provide access to records as required by parts 2 CFR 200.337 and 200.338 as applicable.

---

#### **Program for Enhancement of Contractor Employee Protections (41 U.S.C 4712)**

Subrecipient is hereby notified that they are required to: inform their employees working on any federal award that they are subject to the whistleblower rights and remedies of the program; inform their employees in writing of employee whistleblower protections under 41 U.S.C §4712 in the predominant native language of the workforce; and include such requirements in any agreement made with a subcontractor or subgrantee.

The Subrecipient shall require that the language of the certifications above in this Attachment 1 be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

---

#### **Use of Name**

Neither party shall use the other party's name, trademarks, or other logos in any publicity, advertising, or news release without the prior written approval of an authorized representative of that party. The parties agree that each party may use factual information regarding the existence and purpose of the relationship that is the subject of this Subaward for legitimate business purposes, to satisfy any reporting and funding obligations, or as required by applicable law or regulation without written permission from the other party. In any such statement, the relationship of the parties shall be accurately and appropriately described.

---

#### **Prohibition on Certain Telecommunication and Video Surveillance Services or Equipment**

Pursuant to 2 CFR 200.216, Subrecipient will not obligate or expend funds received under this Subaward to: (1) procure or obtain; (2) extend or renew a contract to procure or obtain; or (3) enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services (as described in Public Law 115-232, section 889) as a substantial or essential component of any system, or as a critical technology as part of any system.

**Attachment 2**  
**Federal Award Terms and Conditions**

Subaward Number

SCON-00005220

**Required Data Elements**

The data elements required by Uniform Guidance are incorporated in the attached Federal Award.

**This Subaward Is:**
 Research & Development

 Subject to FFATA

Awarding Agency Institute (If Applicable)

Federal Award Issue Date      FAIN      Assistance Listing No.

Assistance Listing Program Title (ALPT)

Key Personnel Per NOA

**General Terms and Conditions**

By signing this Subaward, Subrecipient agrees to the following:

1. To abide by the conditions on activities and restrictions on expenditure of federal funds in appropriations acts that are applicable to this Subaward to the extent those restrictions are pertinent. This includes any recent legislation noted on the Federal Awarding Agency's website:

N/A - see Notice of Award

2. 2 CFR 200

3. The Federal Awarding Agency's grants policy guidance, including addenda in effect as of the beginning date of the period of performance or as amended found at:

N/A - see Notice of Award

4. Research Terms and Conditions, including any Federal Awarding Agency's Specific Requirements found at:

N/A - see Notice of Award except for the following :

- a. No-cost extensions require the written approval of the PTE. Any requests for a no-cost extension shall be directed to the Administrative Contact shown in Attachment 3A, not less than 30 days prior to the desired effective date of the requested change.
- b. Any payment mechanisms and financial reporting requirements described in the applicable Federal Awarding Agency Terms and Conditions and Agency-Specific Requirements are replaced with Terms and Conditions (1) through (4) of this Subaward; and
- c. Any prior approvals are to be sought from the PTE and not the Federal Awarding Agency.
- d. Title to equipment as defined in 2 CFR 200.1 that is purchased or fabricated with research funds or Subrecipient cost sharing funds, as direct costs of the project or program, shall vest in the Subrecipient subject to the conditions specified in 2 CFR 200.313.
- e. Prior approval must be sought for a change in Subrecipient PI or change in Key Personnel (defined as listed on the NOA).

5. Treatment of program income: Additive

**Special Terms and Conditions:****Data Sharing and Access:**

Subrecipient agrees to comply with the Federal Awarding Agency's data sharing and/or access requirements as reflected in the NOA or the Federal Awarding Agency's standard terms and conditions as referenced in General Terms and Conditions 1-4 above.

No additional requirements

**Data Rights:**

Subrecipient grants to PTE the right to use data created in the performance of this Subaward solely for the purpose of and only to the extent required to meet PTE's obligations to the Federal Government under its PTE Federal Award.

**Copyrights:**

Subrecipient Shall Grant to PTE an irrevocable, royalty-free, non-transferable, non-exclusive right and license to use, reproduce, make derivative works, display, and perform publicly any copyrights or copyrighted material (including any computer software and its documentation and/or databases) first developed and delivered under this Subaward solely for the purpose of and only to the extent required to meet PTE's obligations to the Federal Government under its PTE Federal Award.

Subrecipient grants to PTE the right to use any written progress reports and deliverables created under this Subaward solely for the purpose of and only to the extent required to meet PTE's obligations to the Federal Government under its Federal Award.

**Promoting Objectivity in Research (COI):**

Subrecipient must designate herein which entity's Financial Conflicts of Interest policy (COI) will apply: Subrecipient

If applying its own COI policy, by execution of this Subaward, Subrecipient certifies that its policy complies with the requirements of the relevant Federal Awarding Agency as identified herein: U.S. Department of Transportation

Subrecipient shall report any financial conflict of interest to PTE's Administrative Representative or COI contact, as designated on Attachment 3A. Any financial conflicts of interest identified shall, when applicable, subsequently be reported to Federal Awarding Agency. Such report shall be made before expenditure of funds authorized in this Subaward and within 45 days of any subsequently identified COI.

**Work Involving Human or Vertebrate Animals (Select Applicable Options)** No Human or Vertebrate Animals

This section left intentionally blank.

**Human Subjects Data (Select One)** 

This section left intentionally blank

This section left intentionally blank

---

**Additional Terms**

Subrecipient agrees that any non-exempt human and/or vertebrate animal research protocol conducted under this Subaward shall be reviewed and approved by its Institutional Review Board (IRB) and/or its Institutional Animal Care and Use Committee (IACUC), as applicable and that it will maintain current and duly approved research protocols for all periods of the Subaward involving human and/or vertebrate animal research. Subrecipient certifies that its IRB and/or IACUC are in full compliance with applicable state and federal laws and regulations. The Subrecipient certifies that any submitted IRB / IACUC approval represents a valid, approved protocol that is entirely consistent with the Project associated with this Subaward. In no event shall Subrecipient invoice or be reimbursed for any human or vertebrate animals related expenses incurred in a period where any applicable IRB / IACUC approval is not properly in place. Subrecipient shall supply PTE's Authorized Official with a copy of the Subrecipient's IRB / IACUC approval immediately upon issuance by Subrecipient IRB and IACUC and any renewals of such approval(s) thereafter.

**Attachment 3A**  
**Pass-Through Entity (PTE) Contacts**

Subaward Number:

SCON-00005220

**PTE Information**

Entity Name: University of Southern California

Legal Address:  
Department of Contracts and Grants  
3720 S. Flower Street  
Los Angeles, CA 90089-0701Website: <https://dcg.usc.edu/>**PTE Contacts**

Central Email: N/A

Principal Investigator Name: Marlon Boarnet

Email: boarnet@usc.edu Telephone Number: (213) 740-3696

Administrative Contact Name: Jenny Tam

Email: jennytam@usc.edu Telephone Number:

COI Contact email (if different to above):

Financial Contact Name: Marlon Boarnet

Email: boarnet@usc.edu Telephone Number: (213) 740-3696

Email invoices?  Yes  No Invoice email (if different): Email invoices to Financial Contact and Copy Administrative Contact

Authorized Official Name: Diana Kapadia

Email: dkapadia@usc.edu Telephone Number: 213-740-6058

**PI Address:**

650 Childs Way Building: RGL Los Angeles, CA 90089 United States of America

**Administrative Address:**

3335 S. Figueroa St Building: UGW Los Angeles, CA 90007 United States of America

**Invoice Address:**

Email invoices to Financial Contact and Copy Administrative Contact

**Attachment 3B**

Subaward Number:

SCON-00005220

**Research Subaward Agreement**  
**Subrecipient Contacts****Subrecipient Information for FFATA reporting**

Entity's UEI/DUNS Name: University of California, Davis

EIN No.: 946036494 Institution Type: Public/State Controlled Inst. of Higher Ed.

UEI / DUNS: TX2DAGQPENZ5 Currently registered in SAM.gov:  Yes  NoParent UEI / DUNS: Exempt from reporting executive compensation     
(if no, complete 3B pg2)**Place of Performance Information for FFATA reporting**

Physical Address, City, State (if U.S.) and Country:

UC Davis, 1 Shields Avenue, Davis, CA 95616-5270

**U.S. Entities only (insert information for Place of Performance):**Congressional District: CA-004 Zip Code+4: 95616-5270 [Zip Code Look-up](#)**Subrecipient Contacts**

Central Email: awards@ucdavis.edu

Website: <https://research.ucdavis.edu/proposals-grants-contracts/spo/>

Principal Investigator Name: Susan Handy

Email: slhandy@ucdavis.edu

Telephone Number:

Administrative Contact Name: Contract and Grants Analyst

Email: awards@ucdavis.edu

Telephone Number: 530-754-7700

Financial Contact Name: Contract and Grants Accounting Supervisor

Email: efa-invoices@ucdavis.edu

Telephone Number: 530-757-8523

Invoice Email: efa-invoices@ucdavis.edu

Authorized Official Name: Ahmad Hakim-Elahi

Email: awards@ucdavis.edu

Telephone Number: 530-754-7700

**Legal Address:**UC Davis  
1 Shields Avenue  
Davis, CA 95616-5270**Administrative Address:**Office of Research  
1850 Research Park Drive  
Davis, CA 95618-6153**Payment Address:**UC Davis AR Lockbox  
PO Box 741816  
Los Angeles, CA 90074-1816  
  
cashier@ucdavis.edu

**Attachment 3B-2**  
**Highest Compensated Officers**Subaward Number:  
SCON-00005220**Subrecipient:**

Institution Name: The Regents of the University of California, Davis

PI Name: Susan Handy

**Highest Compensated Officers**

The names and total compensation of the five most highly compensated officers of the entity(ies) must be listed if the entity in the preceding fiscal year received 80 percent or more of its annual gross revenues in Federal awards; and \$25,000,000 or more in annual gross revenues from Federal awards; and the public does not have access to this information about the compensation of the senior executives of the entity through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. §§ 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. See FFATA § 2(b)(1) Internal Revenue Code of 1986.

Officer 1 Name: Officer 1 Compensation: Officer 2 Name: Officer 2 Compensation: Officer 3 Name: Officer 3 Compensation: Officer 4 Name: Officer 4 Compensation: Officer 5 Name: Officer 5 Compensation:

Subaward Number:

SCON-00005220

## Attachment 4

### Reporting and Prior Approval Terms

Subrecipient agrees to submit the following reports (PTE contacts are identified in Attachment 3A):

**Technical Reports:**

- Monthly technical/progress reports will be submitted to the PTE's [Administrative Contact] within [15] days of the end of the month.
- Quarterly technical/progress reports will be submitted within 30 days after the end of each project quarter to the PTE's [Administrative Contact].
- Annual technical / progress reports will be submitted within [90] days prior to the end of each budget period to the PTE's [Principal Investigator]. Such report shall also include a detailed budget for the next Budget Period, updated other support for key personnel, certification of appropriate education in the conduct of human subject research of any new key personnel, and annual IRB or IACUC approval, if applicable.
- A Final technical/progress report will be submitted to the PTE's [Principal Investigator] within [60] days of the end of the Project Period or after termination of this award, whichever comes first.
- Technical/progress reports on the project as may be required by PTE's [Principal Investigator] in order for the PTE to satisfy its reporting obligations to the Federal Awarding Agency.

**Prior Approvals:**

Carryover:

Carryover is automatic

**Other Reports:**

- In accordance with 37 CFR 401.14, Subrecipient agrees to notify both the Federal Awarding Agency via iEdison and PTE's [Principal Investigator] within 60 days after Subrecipient's inventor discloses invention(s) in writing to Subrecipient's personnel responsible for patent matters. The Subrecipient will submit a final invention report using Federal Awarding Agency specific forms to the PTE's [Principal Investigator] within 60 days of the end of the Project Period to be included as part of the PTE's final invention report to the Federal Awarding Agency.  
A negative report is required:  No
- Property Inventory Report (only when required by Federal Awarding Agency), specific requirements below.

Additional cost sharing requirements included below:

**Additional Technical and Reporting Requirements:**

In order for USC to meet the Prime Agreement reporting requirements we are requesting the Subrecipient to submit the following reports no later than 15 days prior to the due dates listed in Grant Deliverables and Reporting Requirements Document.

- 1) PPPRs
- 2) Performance Indicators
- 3) Recipient Share Report

Please submit reports to Jenny Tam at jennytam@usc.edu and Dr. Marlon Boarnet at boarnet@usc.edu.

Subaward Number:

SCON-00005220

**Attachment 5**  
**Statement of Work, Cost Sharing, Indirects & Budget**

**Statement of Work**

Below  Attached,  pages

If award is FFATA eligible and SOW exceeds 4000 characters, include a *Subrecipient Federal Award Project Description*

--	--

**Budget Information**

<b>Indirect Information</b> Indirect Cost Rate (IDC) Applied	<input type="text" value="59.5"/> %	<b>Cost Sharing</b> <input checked="" type="checkbox" value="Yes"/>
Rate Type:	<input type="text" value="Modified Total Direct Costs"/>	
		If Yes, include Amount: \$ <input type="text" value="245,000.00"/>

**Budget Details**  Below  Attached,  pages

--	--

**Budget Totals**

Direct Costs \$

Indirect Costs \$

Total Costs \$

*All amounts are in United States Dollars*

**Pacific Southwest Region University Transportation Center at the University of Southern California**

**UC Davis Subcontract Scope of Work**

As a subcontractor to the University of Southern California, UC Davis will develop proposals for competitive faculty research projects and will conduct research on projects selected for funding. Principal investigators of these projects will submit quarterly or biannually progress reports and will produce a final research report, a short research brief, and conduct technology transfer activities to disseminate the results of the research, such as presenting findings at academic and/or professional conferences. UC Davis will also contribute to the graduate education activities of the PSR through dissertation grants, graduate seminars, and the Transportation Technology and Policy graduate degree program. UC Davis will contribute to outreach/technology transfer activities of the PSR through webinars and briefings that highlight PSR UC Davis research, as well as presentations at external conferences and other events.

Dr. Susan Handy will be responsible for overseeing these activities and ensuring that the terms of the subcontract are met. She will participate in the PSR Executive Committee meetings, and will be responsible for providing semi-annual progress reports on UC Davis's PSR administrative, research, educational, and technology transfer activities, and annual data for performance metrics, as required for federal reporting.

**Research Budget**

\*Include dissertation grants and graduate fellowships / graduate-led research projects.

**Institution:** University of California, Davis  
**Subaward Amount:** \$245,000  
**Period of Performance**: 6/1/23 - 5/31/24

CATEGORY	Budgeted	Budgeted	Explanatory Notes
	Federal Share	Matching Funds	
Center Director Salary	0	0	USC only
Faculty Salaries	30,545	47,730	Federal: 0.25 of 1 summer month for Susan Handy Matching: ~0.6 of 1 academic calendar month for Susan Handy / Federal: 0.25 of 1 summer month for Susan Handy Matching: ~0.6 of 1 academic calendar month for Susan Handy; 0.5 of 1 academic calendar month for Dan Sperling / Federal: ~1.5 summer months effort for faculty on research project(s). Match: ~4 months effort for faculty on research project.
Administrative Staff Salaries	9,496	0	0.4 months for Assistant Director, 0.2 months for Program Manager, 0.4 months for Research Administrator, 0.16 months for Financial Assistant / 0.2 months for Assistant Program Manager / None requested.
Other Staff Salaries	0	32,037	None requested. / None requested. / Federal: None requested. Match: ~5 months effort for professional researchers on research project.
Student Salaries	65,340	29,923	None requested. / None requested. / Salary for Graduate Student Research assistants (GSRs) at 50% time academic year and 100% time summer for effort on research project(s) and dissertation grant(s). ~1.5 GSRs federal share; 1 GSR non-federal match. Estimated rates are based on current UCD salary scales.
Staff Benefits	9,012	27,290	Fringe Benefits are calculated at UC Davis's federally negotiated rates, which are applied by title code and fiscal year. Please see UC Davis's rate agreement for details. / Fringe Benefits are calculated at UC Davis's federally negotiated rates, which are applied by title code and fiscal year. Please see UC Davis's rate agreement for details. / Fringe Benefits are calculated at UC Davis's federally negotiated rates, which are applied by title code and fiscal year. Please see UC Davis's rate agreement for details.
<b>Total Salaries and Benefits</b>	<b>\$114,393</b>	<b>\$136,980</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	36,985	19,904	None requested. / None requested. / Tuition & Fee remission costs are based on 2023/24 rates as currently published by UCD Graduate Studies. Federal share includes the 25% rebate of the tuition & fee remission provided by the UCD Provost for the ~1.5 students supported by the federal share. Match includes 100% of the tuition & fee remission for the 1 students supported by the non-federal sponsored projects.
Technology Transfer <sup>1</sup>	9,883	19,057	Federal: None requested. Matching: 0.5 of 1 academic calendar month for Dan Sperling / 0.4 months for Policy Director / None requested. / None requested. / Fringe Benefits are calculated at UC Davis's federally negotiated rates, which are applied by title code and fiscal year. Please see UC Davis's rate agreement for details. / None requested. / None requested. / Tech Transfer Supplies, including recharges for presentation materials; fees for online webinar services and presentations. ITS-Davis Asilomar Conference sponsorship (room rental). / Travel for researchers to present on PSR projects (e.g., at PSR Congress). Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing. / None requested. / Open access publication fees
Permanent Equipment <sup>2</sup>	0	0	None requested. / None requested. / None requested.
Expendable Property, Supplies, and Services <sup>3</sup>	2,781	0	Recharges for: Reprographics; conference calls / Supplies for seminars, including fees for online webinar services / Funds are budgeted for basic research project supplies, including but not limited to: data storage devices; printing for surveys, etc.; conference call charges; mailing costs; incentives for voluntary participants of Center projects.
Domestic Travel	2,027	0	PI travel to attend UTC meeting(s). Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing. / Invited seminar speaker travel. Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing. / Planned travel will include reimbursement for travel for site visits and field work; graduate student researcher travel; travel for collaboration; travel to project meetings. Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing.
Foreign Travel <sup>4</sup>	0	0	None requested. / None requested. / None requested.
Other Direct Costs (specify) <sup>5</sup>	1,000	0	None requested. / WTS UC Davis chapter support (for student members to use for allowable meeting expenses, event registrations/travel, etc.) / None requested.
<b>Total Direct Costs</b>	<b>\$167,069</b>	<b>\$175,941</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs			Federal & Match: Indirect costs are based on UC Davis's federally negotiated rate for on-campus organized research @ 59.5% of MTDC from 07/01/2022 – 06/30/2023; and 60% of MTDC from 07/01/2023 – 06/30/2024 (applicable items indicated by *). / \$17,286 of F&A is for Technology Transfer. Federal & Match: Indirect costs are based on UC Davis's federally negotiated rate for on-campus organized research @ 59.5% of MTDC from 07/01/2022 – 06/30/2023; and 60% of MTDC from 07/01/2023 – 06/30/2024 (applicable items indicated by *). / Federal & Match: Indirect costs are based on UC Davis's federally negotiated rate for on-campus organized research @ 59.5% of MTDC from 07/01/2022 – 06/30/2023; and 60% of MTDC from 07/01/2023 – 06/30/2024 (applicable items indicated by *). / Federal: Indirect costs are based on UC Davis's federally negotiated rate for on-campus organized research @ 59.5% of MTDC from 07/01/2022 – 06/30/2023; and 60% of MTDC from 07/01/2023 – 06/30/2024 (applicable items indicated by *). Match: Indirect costs are based on UC's State of California negotiated rate for research @ 30% of MTDC.
<b>TOTAL COSTS</b>	<b>\$245,000</b>	<b>\$245,000</b>	<b>Total Project Costs</b>

<b>SUBAWARD AMOUNT</b>	<b>\$ 245,000.00</b>	<b>\$ 245,000.00</b>
------------------------	----------------------	----------------------

## Attachment 6

### Notice of Award (NOA) and any additional documents

- The following pages include the NOA and if applicable any additional documentation referenced throughout this Subaward.
- Not incorporating the NOA or any additional documentation to this Subaward.

Grant No. 69A3552348309

**UNITED STATES OF AMERICA  
DEPARTMENT OF TRANSPORTATION  
OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH AND TECHNOLOGY**

**UNIVERSITY TRANSPORTATION CENTERS PROGRAM  
GRANT AGREEMENT**

**Grant No. 69A3552348309**

Upon execution by the Grant Recipient named in the Notification of Award below, the U.S. Department of Transportation (US DOT), Office of the Assistant Secretary for Research and Technology (OST-R) and the Grant Recipient have entered into a Grant. The Grant is for the purpose described in the Notification of Award below. In addition to this Grant Agreement, the following documents are attached or are incorporated by reference and made part of the Grant: (1) *Grant Deliverables and Reporting Requirements for 2023 University Transportation Centers*, dated June 2023, (2) *General Provisions of Grants for 2023 University Transportation Centers*, dated June 2023, and (3) the Grant Recipient's Application submitted for this Grant.

Any change to the Grant documents that alters the total amount of Federal funds awarded requires a formal Modification of Grant Agreement signed by the Assistant Secretary for Research and Technology or his or her delegate. No-cost modifications to the Grant and any written approvals required under the Grant shall be signed by the designated OST-R Grant Manager.

**NOTIFICATION OF AWARD**

THE U.S. DEPARTMENT OF TRANSPORTATION, OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH AND TECHNOLOGY (OST-R) HEREBY AWARDS FUNDS TOWARD A FEDERAL GRANT AS FOLLOWS:

Grant Recipient: University of Southern California  
Unique Entity Identifier (UEI): G88KLJR3KYT5  
City, State, Zip Code: Los Angeles, California, 90089

Citation of Statute Authorizing Award: 49 U.S.C. § 5505  
Assistance Listing Number/Identification as R&D Award: 20.701/award is considered as R&D

Purpose of Grant: To conduct a multidisciplinary program of transportation research, education, and technology transfer through a Regional University Transportation Center (UTC) headquartered at the University of Southern California and focused on Improving Mobility of People and Goods.

Purpose of This Grant Agreement: To provide funding from the US DOT for a Regional University Transportation Center headquartered at the University of Southern California and to document terms of the Grant and to document the Grant Recipient's acceptance of the funding and agreement to the terms of the Grant.

Maximum Federal Funds Approved by This Grant Agreement: \$3,000,000

Grant No. 69A3552348309

At the time of award, subject to availability of funds and to the Grant Recipient's compliance with deliverables due to date, OST-R expects to award four additional increments of funding as Modifications to this Grant Agreement at approximately annual intervals from, and in amounts similar to, this initial award, with the Termination Date (stated below) remaining the same after each of these additional incremental awards.

**Matching-Fund Requirement:** A non-Federal match of not less than 100% of the Federal funds paid by the Grantor to the Grant Recipient under this Grant is required as a condition of the Grant. Please see page 8 of the *General Provisions of Grants for 2023 University Transportation Centers*, dated June 2023, for information regarding certain allowable Federal funds that are authorized by statute to be used as match on UTC Grants.

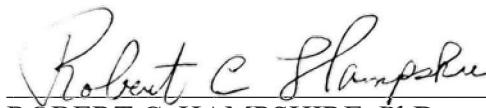
**Statement of Work:** The Application that the Grant Recipient submitted for this Grant under the UTC Program's FY 2022 Notice of Funding Opportunity serves as a general description of work to be done under the Grant. The Grant Recipient shall notify the OST-R Grant Manager immediately at any time during the Grant if circumstances arise that will significantly affect the Grant Recipient's ability to fulfill the intent of its Application.

**Review of Budget:** The designated Grant Manager will review the budget submitted by the Grant Recipient in the Application and will ask for revisions or clarifications as needed.

**Pre-Incurred Costs:** The Grant Recipient may request approval for costs incurred from the February 21, 2023, date when the intent to award this Grant was publicly announced and the Effective Date on this Grant Agreement. Approval may only be requested for costs that are necessary to the conduct of the grant as laid out in the Grant Recipient's Application (see **Statement of Work** above), are consistent with 2 CFR 200.458, and are allowable under Federal grant regulations 2 CFR Part 200.

**Initial Meeting with Grant Manager:** The OST-R Grant Manager on this Grant will contact the Grant Recipient to schedule an initial informational meeting, either held at the Grant Recipient's campus or conducted by videoconference as OST-R deems appropriate, during the first six months of the Grant. This meeting will be for the purpose of establishing working relationships between OST-R staff and Grant Recipient staff; ensuring that, at the outset of the Grant, the Grant Recipient understands the reporting and other requirements; and conveying to the Grant Recipient best practices for operating a University Transportation Center grant.

**Termination Date:** May 31, 2029. This is the last date on which the Grant Recipient may incur costs under this Grant Agreement and any subsequent Modifications to the Grant Agreement.

  
\_\_\_\_\_  
ROBERT C. HAMPSHIRE, PhD  
DEPUTY ASSISTANT SECRETARY  
FOR RESEARCH AND TECHNOLOGY

June 1, 2023  
EFFECTIVE DATE

Grant No. 69A3552348309

### EXECUTION OF GRANT AGREEMENT

OST-R is providing this Grant Agreement electronically via e-mail. The person officially authorized by the Grant Recipient to accept OST-R's award of financial assistance should execute the Grant Agreement and return it electronically via e-mail, to:

Robin Kline, Grant Manager  
University Transportation Centers Program (RDT-10)  
Office of the Assistant Secretary for Research and Technology  
U.S. Department of Transportation  
1200 New Jersey Avenue, SE, Work Station E33-466  
Washington, DC 20590-0001  
phone 202/579-4481  
e-mail [robin.kline@dot.gov](mailto:robin.kline@dot.gov)

**OST-R may withdraw its obligation to provide this financial assistance if the Grant Agreement is not executed within ninety (90) days after the Government's signature date.**  
OST-R will not honor requests for payment under this Grant Agreement until it receives the fully executed Grant Agreement electronically via e-mail.

By executing this Grant Agreement, the Grant Recipient agrees to comply with the Grant Agreement and the following documents that are attached or incorporated by reference:

- (1) *Grant Deliverables and Reporting Requirements for 2023 University Transportation Centers*, dated June 2023,
- (2) *General Provisions of Grants for 2023 University Transportation Centers*, dated June 2023, and
- (3) the Grant Recipient's Application submitted for this Grant.

By executing this Grant Agreement, the Grant Recipient also does hereby ratify and adopt, under penalties or perjury, all statements, representations, warranties, covenants, and materials submitted by it, and does hereby accept OST-R's award of Federal financial assistance and agrees that all applicable terms and requirements of this Grant shall apply to the purpose for which the Grant is awarded.

Executed this 21 day of June, 2023.

BY:

Aimee C. Barnard  
(Signature)

Aimee C. Barnard

NAME

Contracts & Grants Officer

TITLE

University of Southern California

ORGANIZATION



U.S. Department of Transportation  
**Office of the Secretary of Transportation**

## **UNIVERSITY TRANSPORTATION CENTERS (UTC)**

### **GRANT DELIVERABLES AND REPORTING REQUIREMENTS**

*For Grants Awarded in 2023  
Funded by the Bipartisan Infrastructure Law (BIL)*

**June 2023  
Version 1.0**

**Document Status**

<b>Item</b>	<b>Description</b>
Document Title	UTC Grants Deliverables and Reporting Requirements for Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law
Version	1.0
Applicability	

**Document Revision History**

<b>Version</b>	<b>Date</b>	<b>Description</b>



## Contents

1.	Annual Progress Meetings .....	5
2.	UTC Director's Meetings.....	5
3.	UTC Symposiums.....	5
4.	Website .....	5
5.	Directory of Key Center Personnel .....	6
6.	Federal Financial Reports .....	6
7.	Data Management Plan .....	6
8.	Database Repositories .....	6
9.	Research Project Requirements .....	9
10.	Submission of Final Research Reports .....	10
11.	UTC Semi-Annual Progress Report.....	12
12.	Annual Performance Indicators Reports .....	12
13.	Outstanding Student of the Year.....	12
14.	Reporting Inventions and Patents Using iEdison.....	12
15.	Federal Financial Accountability and Transparency Act Reporting Requirement .....	12
	Exhibit A.....	13
	Semi-Annual Progress Report for University Transportation Centers.....	13
	Exhibit B .....	21
	Part I – Program-Wide Performance Indicators .....	21
	Part I – Program-Wide Performance Indicator Form .....	22
	Part I – Program-Wide Performance Indicator Definitions .....	23
	Part II – UTC-Specific Indicators .....	25
	Exhibit C .....	26
	Technical Report Documentation Form, DOT F 1700.7 .....	26
	Exhibit D.....	28
	Research Project Requirement Template.....	28
	Exhibit E .....	29
	Reporting Inventions and Patents Using iEdison .....	29
	Exhibit F .....	30
	Federal Financial Accountability and Transparency Act Reporting Requirement.....	30
	Exhibit G.....	31
	List of Acronyms.....	31



## NOTICE

DOT invests in the future of transportation through its University Transportation Centers (UTC) Program, which awards and administers grants to consortia of colleges and universities across the United States. The UTC Program advances the state-of-the-art in transportation research and technology, and develops the next generation of transportation professionals. The Congressionally-mandated program has been in place since 1987 to help address our Nation's ever-growing need for the safe, efficient, and environmentally sound movement of people and goods.

The Infrastructure Investment and Jobs Act (IIJA) (P. L. 117-58, November 15, 2021) (also commonly known as the “Bipartisan Infrastructure Law,” or “BIL”) made funds available to the United States Department of Transportation (the “USDOT”) for fiscal year 2022 through 2026<sup>1</sup> to carry out 49 U.S.C. § 5505(b)(4)(B), as amended by the IIJA, to establish and operate University Transportation Centers (UTCs or Centers) to support surface transportation through the US DOT statutory research priorities outlined in the Notice of Funding Opportunity. The Office of the Assistant Secretary for Research and Technology (OST-R) of the USDOT will manage the UTC Program.

Grants awarded under UTC Program are selected to support the DOT mission, *“To deliver the world’s leading transportation system, serving the American people and economy through the safe, efficient, sustainable, and equitable movement of people and goods.”*

Grant deliverables and reporting requirements are mandatory under the University Transportation Centers (UTCs) Program. Failure to comply with timely submission of these deliverables and requirements may delay reimbursement of invoices and/or funding for modifications of multiple-year grants. In extreme cases of non-compliance, a recipient may be found to be in material failure to comply with the award terms and conditions. Such a determination may result in termination of the grant for failure to comply and a determination that the recipient is not qualified to receive and manage Federal grants. Section 200.340(c) “Termination” of the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* requires Federal agencies to report to the Federal Awardee Performance and Integrity Information System when it terminates an award prior to the end of the period of performance due to a recipient’s material failure to comply with Federal award terms and conditions. The U.S. Department of Transportation (USDOT) agency will report to the Federal Awardee Performance and Integrity Information System after the recipient has exhausted its appeal rights.

---

<sup>1</sup> Incremental funding in fiscal years beyond FY 2022 is subject to the availability of funds.



## **1. Annual Progress Meetings**

To foster stewardship of federal funds and ensure our Centers are in alignment with the department's strategic framework for research and development activities, each Center Director shall hold an annual meeting either in-person or virtually to brief the Research, Development and Technology Director, the University Transportation Centers Director, and the assigned Grant Manager. These meetings should provide insight into the planning and conduct of your grant, including how your consortium is advancing transportation through its research activity, working to achieve success, and helping to make sure your research activities are on track, in alignment with departmental research priorities, and maximizes the benefits of science and technology.

## **2. UTC Director's Meetings**

The UTC Program Director will convene two meetings per year of all UTC Recipients for information exchange, identifying best practices in UTC Grant management, and administrative streamlining. Meetings are held in January in Washington, DC, at the start of the Transportation Research Board Annual Meeting, and in conjunction with the Council of University Transportation Centers (CUTC) Winter Meetings, and in approximately June or July at a university that volunteers to host the event. The Center Directors in-person attendance at **both** these meetings is compulsory. In the event the Center Director has an unforeseen circumstance prohibiting them from attending, the Center Director must send an alternate to the meeting and inform their Grant Manager.

## **3. UTC Symposia**

The UTC Program projects to convene up-to two UTC symposiums per year to offer opportunities for each Center to share ongoing research findings and results with the UTC community. It is expected that there will be significant participation and engagement from each Center to allow for adequate showcasing of research being executed at the Centers.

## **4. Website**

The Recipient must establish and maintain an up-to-date, informational website listing at a minimum the following items plus any other information the Recipient wishes to include to make interested parties aware of its work under the UTC grant:

- Director of key personnel
- Current research projects
- Final research reports
- Semi-Annual Progress Report

(See items 5, 9, 10, and 11 for additional detail)

A basic framework of this website must be available for public viewing by within 30 days of receiving the Grant Agreement. Each Center Director must provide the Office of the Assistant Secretary for Research and Technology (OST-R) Grant Manager with the link to their UTC's website which will be included in the UTC program's website at <https://www.transportation.gov/content/university-transportation-centers>. Center Directors can reference the General Services Administration's website to obtain technical assistance with making web content accessible to individuals with disabilities. For additional information, click <https://www.section508.gov/>.



## **5. Directory of Key Center Personnel**

The Recipient must prepare a “Directory of Key Center Personnel” that includes the names, titles, phone/fax numbers, mailing addresses, and e-mail addresses of key Center personnel, including the Director’s primary administrative staff person and at least one contact person at each university in a consortium, if any. This information must be placed on the Center’s website within 30 days of receiving the Grant Agreement. The Center Director must ensure that the information remains posted and is current throughout the life of the grant.

## **6. Federal Financial Reports**

Federal Financial Report, or Standard Form (SF) 425 are due at the end of each calendar quarter and must cover the three-month reporting periods ending on March 31, June 30, September 30, and December 31. The Center Director or designated university official must prepare and submit via email to your Grant Manager the Federal Financial Report (SF) 425 no later than 30 days after the reporting period end date. The SF 425 does not need to be posted on the UTC’s website. After the grant’s termination date, a final SF 425 should be submitted along with the final invoice.

## **7. Data Management Plan**

OST-R-funded researchers must comply with the U.S. DOT Public Access Plan. The Recipient must create a “Data Management Plan” that describes its strategy for collecting, processing and archiving Digital Data Sets resulting from USDOT-funded scientific research in a repository that enables and allows for public access and sharing. Within 90 days of receiving the Grant Agreement, the Data Management Plan must be submitted to your Grant Manager for review and approval. Data Management Plans that do not meet the minimum requirements, provided below, will be returned for revision.

- A high-level description of the types of data that the Center anticipates gathering in the course of conducting research activities, including whether the data should be preserved for long-term access.
- A proposed outline of the standards and machine-readable formats that will be used for the entire scope of research activities.
- A description of any data access policies that govern (and prevent) the disclosure of identities, confidential business information, national security information, etc., and whether public use files may be generated from the data.
- A general discussion of policies for re-use and re-distribution of research data. and
- A high-level description of how, when, and where the Center plans to archive, preserve, and deposit the research data.

Immediately notify your Grant Manager if changes are made to the Data Management Plan after it is approved. For more information about creating data management plans, click-on <https://ntl.bts.gov/ntl/public-access/creating-data-management-plans>.

## **8. Database Repositories**

To ensure the transportation research community has access to all federally funded transportation-related research, reports, and data, each Recipient must submit their research project requirements to the following libraries. A description of these databases is provided below:

- **Transportation Research Board’s Research in Progress (RiP) Database** (<https://rip.trb.org/>) – This database contains information on more than 14,000 current or recently completed



transportation research projects. RiP records include projects funded by USDOT, State DOTs and University transportation research.

- **Transportation Research International Documentation** (<https://trid.trb.org/>) - This database contains more than 1.3 million references to books, technical reports, conference proceedings, and journal articles in the field of transportation research.
- **National Transportation Library Digital Repository** (also known as the Repository & Open Science Access Portal (ROSA P)) (<https://ntl.bts.gov/ntl>). This publicly-accessible, no-cost repository is dedicated to transportation research, information, and statistics produced or funded by USDOT, and other transportation organizations and researchers, as appropriate. The content includes:
  - Born-digital and digitized print publications (technical reports, scientific papers, manuscripts, journal articles, etc.);
  - Machine-readable datasets;
  - Videos and still images;
  - Maps and GIS files;
  - Presentations; and,
  - Others as appropriate
- **USDOT Research Hub** (<https://researchhub.bts.gov/search>) – This web-based, searchable database of USDOT-sponsored research, development, and technology project records acts as a central repository for information on active and recently completed projects from USDOT's Operating Administrations, providing a comprehensive account of the Department's research portfolio at the project level.

Each Center Director must ensure that each partially or fully funded research project managed by researchers at the lead institution and sub-awardees is in compliance with the USDOT Public Access Plan (<https://doi.org/10.21949/1520559>) and the data management practices detailed in each Center's Data Management Plan before starting a research project.

Research projects shall consider, plan, budget for, and implement appropriate data management to promote Public Access (<https://doi.org/10.21949/1520559>) to research data acquired or generated during the course of the project. Such considerations will include, but are not limited to, a project:

- providing at a minimum the research data to: (1) reproduce significant results (whether positive or negative); (2) measure the outcomes or objectives of the project, as well as the Notice of Funding Opportunity; and, (3) add potential value to future research and support evidence-based policy or actions;
- developing a data management plan (<https://doi.org/10.21949/1520571>) and providing relevant metadata (in a DCAT-US <https://resources.data.gov/resources/dcat-us/> file, and, optionally, a discipline appropriate metadata standard file) and data documentation (README.txt files, data dictionaries, code books, supporting files, imputation tables, etc.);



- defaulting to open access when appropriate (exceptions include protecting personally identifiable information, Indigenous data sovereignty (<https://www.gida-global.org/care>), or confidential business information (CBI));
- utilizing, when possible, open licenses and protecting U.S. DOT's non-exclusive copyright to research outputs (<https://doi.org/10.21949/1520564>); and
- providing software or tools necessary to analyze or transform the data.

Projects should implement data management best practices including, but not limited to implementation of published data specifications and standards (formal and informal); increasing data discoverability and data sharing; protecting human subjects and business information; and enabling interaction of systems, interoperability, and integration of data systems.

**Research Data Definition:** Consistent with Federal laws, and USDOT policy, “Research data” means the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, as may be textually represented in a publication, and be stored in a digital machine-readable format for further computational analysis. This does not mean summary statistics or tables; rather, it means the data on which summary statistics and tables are based.

Within one month after project selection, the Center Director must do the following:

- a. Submit to the Transportation Research Board’s RiP database a project description for each project. The project information must be entered into the RiP database at <https://rip.trb.org>. The Recipient **must** complete all of the following **required** fields:

- **Title:** Title of research project.
- **Record URL:** External web link to project information.
- **Source Agency:** Agency entering the record. Automatically determined by credentials.
- **Abstract:** A brief and objective summary of the project including objectives, scope and method.
- **Supplemental Notes:** Any relevant information not readily covered in other fields.
- **Contract/Grant Numbers:** Contract or grant numbers which uniquely identify the project.
- **Project Status:** Current status (active, completed, inactive, programmed, proposed, terminated).
- **Funding Amount:** Amount of funding allocated for this research project. Format: \$12345.
- **Date Start, expected completion, and actual completion date for project.** Format: yyyy-mm-dd.
- **Sponsor Organizations:** Agency or organization providing funding for the project.
- **Managing Organizations:** Agency or organization overseeing the management of the project.
- **Project Managers:** Person responsible for project schedules, progress, and management.
- **Performing Organizations:** Agency or organization conducting the research.
- **Principal Investigators:** Lead researchers for a project.
- **USDOT Program and Sub-Program:** Research program/subprogram (if any).
- **Index Terms:** Keywords that describe the project.



- **Subject Areas:** Broad categories that describe transportation modes and functions.
- b. Post on the Center's website information for each new research project selected using the Research Project Requirements Template shown in Exhibit D. Each research project partially or fully funded by the Center must have its own form, and the content contained therein should not be longer than two pages. After the initial information fields are completed, the Research Project Requirements Template must be updated every six months; this update may coincide with the Center's semi-annual reports. These forms must be updated not only through the completion of the research project, with a research report URL included in the form, but through implementation and must include a summary of the benefits of that implementation. These forms must be maintained on the Center's website during the life of the grant, with updates as necessary.
- c. Require all researchers to obtain a unique personal ORCID (Open Researcher and Contributor ID) identification if they do not already have one. ORCID.org provides a registry of persistent unique identifiers for researchers and scholars and automating linkages to research objects such as publications, grants and patents. Registration is free and takes about 5 minutes. If other researchers are added to the project after its initiation, they should also be required to obtain an ORCID ID.

## **9. Research Project Requirements**

The Program Office is accountable for all aspects of the UTC program; nothing precludes the Program Office's access to and review of a Center's projects or activities at any time.

Within one month after project selection, the Center Director shall submit to the Grant Manager of the UTC Program Office of the Department of Transportation, for review, a comprehensive list of research, education, and technology transfer projects or activities, including:

- 1- a description and the major objectives of each proposed project or activity, including:
  - a. the planned USDOT funding of any new project or activity;
  - b. the planned additional funding for any existing project or activity;
  - c. the planned non-USDOT funding.
- 2- a general description of how the proposed project or activity supports the DOT priorities, the RD&T strategic goals, and research priorities, and the statutory area of focus for the UTC;
- 3- a general description how the proposed project or activity engages in breakthrough, advanced, or transformative research, education and workforce development, or technology transfer activities that cut across disciplines and span multiple modes of transportation.
- 4- an assessment of the potential impact of the project or activity including potential outputs, outcomes, and impacts on technologies, practices, federal regulations, or workforce development; and
- 5- a description of potential partnerships to be established to conduct the project or activity.
- 6- such other information as the program office determines to be necessary to address Departmental priorities and statutory mandates

The Center Director has responsibility of forwarding information for each research project using the Research Project Requirements Template in Exhibit D to their designated Grant Manager via email.

Each Center Director must ensure that each partially or fully funded research project managed by researchers at the lead institution and sub-awardees is in compliance with the USDOT Public Access Plan (<https://doi.org/10.21949/1520559>) and the data management practices detailed in each Center's Data Management Plan before starting a research project.



Research projects shall consider, plan, budget for, and implement appropriate data management to promote Public Access (<https://doi.org/10.21949/1520559>) to research data acquired or generated during the course of the project. Such considerations will include, but are not limited to, a project:

- providing at a minimum the research data to: (1) reproduce significant results (whether positive or negative); (2) measure the outcomes or objectives of the project, as well as the Notice of Funding Opportunity; and, (3) add potential value to future research and support evidence-based policy or actions;
- developing a data management plan (<https://doi.org/10.21949/1520571>) and providing relevant metadata (in a DCAT-US <https://resources.data.gov/resources/dcat-us/> file, and, optionally, a discipline appropriate metadata standard file) and data documentation (README.txt files, data dictionaries, code books, supporting files, imputation tables, etc.);
- defaulting to open access when appropriate (exceptions include protecting personally identifiable information, Indigenous data sovereignty (<https://www.gida-global.org/care>), or confidential business information (CBI));
- utilizing, when possible, open licenses and protecting U.S. DOT's non-exclusive copyright license to research outputs (<https://doi.org/10.21949/1520564>); and
- providing software or tools necessary to analyze or transform the data.

Projects should implement data management best practices including, but not limited to implementation of published data specifications and standards (formal and informal); increasing data discoverability and data sharing; protecting human subjects and business information; and enabling interaction of systems, interoperability, and integration of data systems.

## **10. Submission of Final Research Reports**

The Center Director must submit a final report for each research project conducted with UTC Program funding, including matching funds. Final research reports must give a complete description of the problem, approach, methodology, findings, conclusions, and recommendations developed as a result of the project and must completely document all data gathered, analyses performed, and results achieved. The inside of the front cover must show a disclaimer including the following:

### ***DISCLAIMER***

*The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated in the interest of information exchange. The report is funded, partially or entirely, under [grant number] from the U.S. Department of Transportation's University Transportation Centers Program. The U.S. Government assumes no liability for the contents or use thereof.*

Within two months after the completion of each project, the Center Director must:

- a. Publish on the Center's website the full final report. Visit <https://www.section508.gov/> to ensure the final report (including graphics) complies with Section 508 of the Rehabilitation Act of 1973.



- b. Change the status of the project in RiP from "Active" to "Completed" and retrieve the Research Hub Display Identification (RH Display ID) number for the project (this number will be displayed within each project record).
- c. Package and archive data as outlined in your Data Management Plan.
- d. Include ORCIDs and funding agreement number(s) on the Technical Report Documentation Page, see Exhibit C, and in any peer-reviewed publication submissions. Please use the Technical Report Documentation Form (DOT F 1700.7) and include ORCID identifier, as an URL, without punctuation after the author's name in box 7 (e.g., Jane Doe <https://orcid.org/0000-0002-2345-6789>) and the UTC Grant number in box 11.
- e. Ensure that all rights under copyright are non-exclusively retained by USDOT and that the terms and conditions of publication to peer-reviewed journals and other outlets do not impair the obligation of the authors to comply with the plan.
- f. Send one email that includes the following information to [research.hub@dot.gov](mailto:research.hub@dot.gov), [NTLDigitalSubmissions@dot.gov](mailto:NTLDigitalSubmissions@dot.gov), and [TRIS-TRB@nas.edu](mailto:TRIS-TRB@nas.edu):
  - 1. Final Report URL(s) or PDFs for any resulting publications;
  - 2. URL(s) to, and associated descriptive metadata for, any final datasets from the research project;
  - 3. The funding agreement number of the project;
  - 4. The RH Display ID for the project;
  - 5. ORCIDs (unique researcher IDs) for all project investigators, contributors, and publication author(s); and
  - 6. Any documented project outputs or outcomes resulting from the research project (see Exhibit D for more information).

Final reports and dataset URLs will be appended to your project records in the USDOT Research Hub, thus providing a single location from which the public can access your research products.

- g. Additionally, distribute each final report to the following addresses listed below:
  - 1. *Volpe National Transportation Systems Center*  
U.S. Department of Transportation  
(Send URL via e-mail to [Cassandra.Allwell@dot.gov](mailto:Cassandra.Allwell@dot.gov))
  - 2. *Federal Highway Administration Research Library*  
Turner-Fairbank Highway Research Center  
(Send URL to [FHWAlibrary@dot.gov](mailto:FHWAlibrary@dot.gov))
  - 3. *National Technical Information Service*  
U.S. Department of Commerce  
(Send URL or PDF via e-mail to [input@ntis.gov](mailto:input@ntis.gov))



## **11. UTC Semi-Annual Progress Report**

UTC Semi-Annual Progress Reports (SAPR) covers six months of the UTC's activities between April 1<sup>st</sup> and September 30<sup>th</sup> and October 1<sup>st</sup> and March 31<sup>st</sup> and is due semi-annually, on or before the 30<sup>th</sup> day of the month following the end of the reporting period for the duration of the grant. The Center Director must prepare and submit to the Grant Manager the UTC Semi-Annual Progress Report in Exhibit A. This report serves as the UTC Semi-Annual Progress Report follows a modified format that is based, to a limited extent, on the format developed by the National Science Foundation for use in progress reporting on Federal research grants. The UTC Semi-Annual Progress Report must be posted on the Center's website and submitted electronically to the designated Grant Manager.

## **12. Annual Performance Indicators Reports**

Annually, covering the period October 1 to September 30, Center Directors must report by October 30 performance indicators using the formatted Excel template in Exhibit B electronically to the designated Grant Manager. These indicators include:

- a. Part I – Program-Wide Indicators; and
- b. Part II – UTC Specific Performance Indicators identified in your grant application.

## **13. Outstanding Student of the Year**

To recognize and honor the students supported by the UTC Program, OST-R sponsors an annual awards banquet in collaboration with the Council of University Transportation Centers in January in Washington, DC. The UTC Program Office will send an announcement including eligibility criteria and submission guidelines to each participating Center. Each Center must choose or decline to choose one eligible outstanding student of the year by the deadline established by the UTC Program Office. The Center must provide the student's information and headshot photo for inclusion in the Student of the Year Awards Program Booklet. The Center must award its Student of the Year \$2,000 and the costs for the student to attend the award ceremony and the Transportation Research Board Annual Meeting in Washington, DC. The Center is required to split the student award amount equally between Federal and non-Federal matching funds. For restrictions pertaining to student of the year eligibility, see *General Provisions of Grants for University Transportation Centers*, Section III.4, Citizenship of Students.

## **14. Reporting Inventions and Patents Using iEdison**

iEdison (which stands for Interagency Edison) is a database that helps government Recipients and contractors comply with a Federal law, the Bayh-Dole Act. This act requires that government-funded inventions be reported electronically through a single user interface. Please refer to Exhibit E for further information on reporting inventions and patents developed with UTC program funds.

## **15. Federal Financial Accountability and Transparency Act Reporting Requirement**

As required by the Federal Funding Accountability and Transparency Act of 2006, recipients of Federal awards, i.e., grants, cooperative agreements, and other forms of Federal financial assistance, must report information on sub-awards they make and executives' total compensation. This guidance applies to all entities that apply for or receive Federal grant awards, or receive subawards under those awards, with certain exemptions and exceptions. Please refer to Exhibit F.



**Exhibit A****Semi-Annual Progress Report for University Transportation Centers****COVER PAGE DATA ELEMENTS:**

- Federal Agency and Organization Element to Which Report is Submitted;
- Federal Grant or Other Identifying Number Assigned by Agency;
- Project Title;
- Center Director Name, Title and Contact Information (e-mail address and phone number);
- Name of Submitting Official, Title, and Contact Information (e-mail address and phone number), if other than Center Director;
- Submission Date;
- DUNS and EIN Numbers;
- Recipient Organization (Name and Address);
- Recipient Identifying Number or Account Number, if any;
- Project/Grant Period (Start Date, End Date);
- Reporting Period End Date;
- Report Term or Frequency (annual, semi-annual, quarterly, other); and
- Signature of Submitting Official (signature must be submitted in accordance with agency- specific instructions).

**REPORT LENGTH:** The UTC Semi-Annual Progress Report must not exceed 20 pages in length including cover page. Shorter lengths are encouraged as long as the content reported is commensurate with the level of effort and expenditures.

**SUBMITTAL AND WEB POSTING:** The UTC Semi-Annual Progress Report must be submitted by email to the designated Grant Manager as a Word document or PDF, and must be posted on the Center's website.

**FREQUENCY OF REPORTING:** The first report must cover the period from receipt of the Grant Agreement, and including any activities conducted with approved pre-incurred costs, through September 30 and must be submitted no later than 30 days after the end of that period. Subsequent reports for all Recipients must cover activities for periods ending March 31 and September 30 of each year and must be submitted no later than 30 days after the end of the reporting period until all grant funds have been fully expended. (See Exhibits D)

**REPORTING CATEGORIES**

<b>1. ACCOMPLISHMENTS:</b> What was done? What was learned?
---

The information provided in this section allows the OST-R grants official to assess whether satisfactory progress has been made during the reporting period.

**INSTRUCTIONS - Accomplishments**

U.S. Department of Transportation

**Office of the Secretary of Transportation**

The Center Director must obtain prior written approval from the Grant Manager whenever there are significant changes in the program or its direction.

- What are the major goals and objectives of the program?
- What was accomplished under these goals?
- What opportunities for training and professional development has the program provided?
- How have the results been disseminated? If so, in what way/s?
- What do you plan to do during the next reporting period to accomplish the goals and objectives?

*What are the major goals of the program?*

List the major goals of the program as stated in the approved application or as approved by OST-R. If the application lists milestones/target dates for important activities or phases of the program, identify these dates and show actual completion dates or the percentage of completion.

Generally, the goals will not change from one reporting period to the next. However, if OST-R approved changes to the goals during the reporting period, list the revised goals and objectives. Also explain any significant changes in approach or methods from the OST-R approved application or plan.

*What was accomplished under these goals?*

For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results, including major findings, developments, or conclusions (both positive and negative); and 4) key outcomes or other achievements. Include a discussion of stated goals not met. As the program progresses, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

Generally, the activities and expected outputs, outcomes and impacts should not change from one reporting period to the next. However, if there are changes, please list the revisions and explain the reason(s) for the changes.

*How have the results been disseminated?*

If there is nothing significant to report during this reporting period, state “Nothing to Report.” Describe how the results have been disseminated. Include any outreach activities that have been undertaken to reach members of communities who are not usually aware of these program activities, for the purpose of enhancing public understanding and increasing interest and transportation careers.

*What do you plan to do during the next reporting period to accomplish the goals?*

If there are no changes to the agency-approved application or plan for this effort, state “No Change.”

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.



**2. PARTICIPANTS & COLLABORATING ORGANIZATIONS:** Who has been involved?

OST-R needs to know who has worked on the project to gauge and report performance in promoting partnerships and collaborations.

**INSTRUCTIONS - Participants & Collaborating Organizations**

Provide the following information on participants:

- What organizations have been involved as partners?
- Have other collaborators or contacts been involved?

*What organizations have been involved as partners?*

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that have been involved with the program. Partner organizations may provide financial or in-kind support, supply facilities or equipment, collaborate in the research, exchange personnel, or otherwise contribute.

Provide the following information for each partnership:

- Organization Name;
- Location of Organization (if foreign location list country); and
- Partner’s contribution to the project (identify one or more):
  - Financial support,
  - In-kind support (e.g., partner makes software, computers, equipment, etc., available to project staff),
  - Facilities (e.g., project staff use the partner’s facilities for project activities),
  - Collaborative research (e.g., partner’s staff work with project staff on the project), and
  - Personnel exchanges (e.g., project staff and/or partner’s staff use each other’s facilities, work at each other’s site).

*Have other collaborators or contacts been involved?*

If there is nothing significant to report during this reporting period, state “Nothing to Report.”

Some significant collaborators or contacts within the lead or partner universities may not be covered by “What people have worked on the project?” Likewise, some significant collaborators or contacts outside the UTC may not be covered under “What other organizations have been involved as partners?” For example, describe any significant:

- Collaborations with others within the lead or partner universities especially interdepartmental or interdisciplinary collaborations,
- Collaborations or contact with others outside the UTC, and/or
- Collaborations with other countries and contacts outside the United States or with an



international organization.

**3. OUTPUTS:** What new research, technology or process has the program produced?

Research outputs are any new or improved process, practice, technology, software, training aid, or other tangible product resulting from research and development activities. They are used to improve the efficiency, effectiveness and safety of transportation systems.

Many Centers develop significant outputs other than publications. OST-R assesses and reports both publications and other products to Congress, communities of interest, and the public.

### INSTRUCTIONS - Outputs

List any outputs resulting from the program during the reporting period. Examples of outputs include:

- Publications, conference papers, and presentations;
- Policy papers;
- Website(s) or other Internet site(s);
- New methodologies, technologies or techniques;
- Inventions, patents, and/or licenses; or
- Other products, such as data or databases, physical collections, audio or video products, application software, analytical models, educational aids, courses or curricula, instruments, equipment, or research material.

If there is nothing to report under a particular item, state “Nothing to Report.”

#### *Publications, conference papers, and presentations*

Report only the major publication(s) resulting from the work under this award. There is no restriction on the number. However, OST-R is interested in only those publications that most reflect the work under this award in the following categories:

*Journal publications:* List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Include any peer-reviewed publication in the periodically published proceedings of a scientific society, a conference, or the like. A publication in the proceedings of a one-time conference, not part of a series, should be reported under “Books or other non-periodical, one-time publications.”

Identify for each publication: Author(s); title; journal; volume; year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgment of Federal support (yes/no).

*Books or other non-periodical, one-time publications:* Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like.



*Identify for each one-time publication:* Author(s); title; editor; title of collection, if applicable; year; type of publication (book, thesis or dissertation, other); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgment of Federal support (yes/no).

*Other publications, conference papers and presentations:* Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above.

**NOTE:** Please do not send or attach any publications, papers or presentations.

#### *Website(s) or other Internet site(s)*

List the URL for any Internet site(s) that disseminates the results of the research and/or program activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

#### *Technologies or techniques*

Identify technologies or techniques that have resulted from the research activities. Describe the technologies or techniques and how they are being shared.

#### *Inventions, patent applications, and/or licenses*

Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award. For additional requirements pertaining to Patents and Copyrights, refer to *General Provisions of Grants for University Transportation Centers*, Section III, 12.

NOTE: Any significant outputs (other than publications, conference papers, and presentations) should also be reported to [research.hub@dot.gov](mailto:research.hub@dot.gov). Please enter “Project Outputs” in the email header along with the RH Display ID of the project, and then enter a short text description of the research product. Research outputs, outcomes, and impacts are defined in the [U.S. DOT Research, Development and Technology Strategic Plan FY 2022-2026](#).

**4. OUTCOMES:** What outcomes has the program produced? How are the research outputs described in section (3) above being used to create outcomes?

Outcomes are the application of outputs; any changes made to the transportation system, or its regulatory, legislative, or policy framework, resulting from research and development outputs.

### **INSTRUCTIONS - Outcomes**

This component should describe ways in which the application of outputs has produced outcomes during the reporting period. Describe how research outputs are being used to create expected or actual outcomes with the understanding that outcomes can sometimes take a significant amount of time to realize.



U.S. Department of Transportation

**Office of the Secretary of Transportation**

List any outcomes resulting from the program during the reporting period. Examples of outcomes include:

- Increased understanding and awareness of transportation issues;
- Passage of new policies, regulation, rulemaking, or legislation;
- Increases in the body of knowledge;
- Improved processes, technologies, techniques and skills in addressing transportation issues;
- Enlargement of the pool of trained transportation professionals; or
- Adoption of new technologies, techniques or practices.

**5. IMPACTS:** What is the impact of the program? How has it contributed to improve the transportation system: enhance safety, reliability, durability; improve transportation education; strengthen the workforce, etc.?

Impacts are the effects of outcome on the transportation system, or society in general, such as reduced fatalities, decreased capital or operating costs, community impacts, or environmental benefits. The taxpaying public and its representatives deserve a periodic assessment to show them how the investments they make benefit the nation. Through this reporting format, and especially this section, UTCs provide that assessment and make the case for Federal funding of research and education by demonstrating the impacts that UTC funding has had on technology and education.

USDOT uses this information to assess how the research and education programs:

- Improve the operation and safety of the transportation system;
- Increase the body of knowledge and technologies;
- Enlarge the pool of people trained to develop knowledge and utilize new technologies; and
- Improves the physical, institutional, and information resources that enable people to have access to training and new technologies.

### INSTRUCTIONS - Impacts

This component should describe ways in which the work, findings, and specific outputs/outcomes of the program have had an impact during this reporting period. Describe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the program relative to:

- The effectiveness of the transportation system;
- Technology transfer (include transfer results to entities in government or industry, adoption of new practices, or instances where research outcomes have led to the initiation of a start-up company);
- The increase in the body of scientific knowledge; and
- Transportation workforce development.

If there is nothing to report under a particular item, state “Nothing to Report.”

*What is the impact on the effectiveness of the transportation system?*



Describe how the outcomes of research have been implemented and impacted (either positively or negatively) the operations and effectiveness of the transportation system. These impacts should be based on data collected in the assessment of the implemented outcome.

*What is the impact of technology transfer on industry and government entities, on the adoption of new practices, or on research outcomes which have led to initiating a start-up company?*

Describe ways in which research outcomes made an impact, or are likely to make an impact, on commercial technology or public use, including:

- Transfer of results to entities in government or industry;
- Instances where the research has led to commercialization of a technology or process; or
- Adoption of new practices.

*What is the impact on the body of scientific knowledge?*

Describe how findings, results, techniques that were developed or extended or other products from the program made an impact or are likely to make an impact of the base of knowledge, theory, and research and/or pedagogical methods in the principal disciplinary field(s) of the program. Summarize using language that an intelligent lay audience can understand.

How the field or discipline is defined in not as important as covering the impact the work has had on knowledge and technique. Make the best distinction possible, for example, by using a “field” or “discipline”, if appropriate, that corresponds broadly with a field of knowledge and not with departmental specializations (i.e., physics rather than nuclear physics).

*What is the impact on transportation workforce development?*

Describe how the program made an impact or is likely to make an impact on transportation workforce development. For example, how has the program:

- Provided opportunities for research and teaching in transportation and related disciplines;
- Improved the performance, skills, or aptitudes of members of underrepresented groups that will improve their access to or retention in transportation research, teaching, or other related professions; or
- Developed and disseminated new educational materials or provided scholarships; or provided exposure to transportation, science and technology for practitioners, teachers, young people, or other members of the public?

NOTE: Any significant outcomes/impacts should also be reported to [research.hub@dot.gov](mailto:research.hub@dot.gov). Please enter “Project Outcomes” in the email header along with the RH Display ID of the project, and then enter a short text description of the research product and its impact.

## 6. CHANGES/PROBLEMS

The Recipient is required to obtain prior written approval from the OST-R grants official whenever there are significant changes in the project or its direction. See agency specific instructions for



U.S. Department of Transportation

**Office of the Secretary of Transportation**

submission of these requests. If not previously reported in writing, provide the following additional information, if applicable:

- Changes in approach and reasons for change;
- Actual or anticipated problems or delays and actions or plans to resolve them;
- Changes that have a significant impact on expenditures; or
- Significant changes in use or care of animals, human subjects, and/or biohazards.

### **INSTRUCTIONS - Changes/Problems**

If not previously reported in writing to OST-R through other mechanisms, provide the following additional information or state, "Nothing to Report, if applicable:

*Changes in approach and reasons for change*

Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the Grant Manager.

*Actual or anticipated problems or delays and actions or plans to resolve them*

Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

*Changes that have a significant impact on expenditures*

Describe changes during the reporting period that may have a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

*Significant changes in use or care of human subjects, vertebrate animals, and/or biohazards*

Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, and/or biohazards during the reporting period. If required, were these changes approved by the applicable institution committee and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.

*Change of primary performance site location from that originally proposed*

Identify any change to the primary performance site location identified in the proposal, as originally submitted.

### **7. SPECIAL REPORTING REQUIREMENTS**

Respond to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.



U.S. Department of Transportation

**Office of the Secretary of Transportation**

**Exhibit B****Part I – Program-Wide Performance Indicators**

Each Recipient must report program-wide indicator metrics each year and include the metrics for each consortium member using the Excel spreadsheet format on the next page. The Excel spreadsheet template, available on <https://www.transportation.gov/utc/tools-grantees>, is mandatory for reporting UTC performance indicators. The first-year Indicator report should cover from the beginning of the grant to September 30, 2024, then from October 1 to September 30 of each year of the grant. Indicator reports are due each year on October 30.

**Instructions:**

Report the program-wide indicator metrics for the completed grant year. Include the metrics for each consortium member. Add as many columns as necessary to include all consortium members. In the event that a consortium member participates in more than one UTC, include only the metrics corresponding with your grant and reporting period. Email the completed program-wide indicator report as a spreadsheet along with the UTC-specific indicator report to your Grant Manager within 30 days of the end of the grant year. Please do not send a PDF, add a cover page, or attach to another report.



## Part I – Program-Wide Performance Indicator Form

<b>University Transportation Centers Program Performance Indicators</b>							
UTC Name: _____ University: _____ Grant #: _____ Reporting Period: _____							
<b>Performance Indicators</b>	<b>Consortium</b>	<b>Consortium Member 1</b>	<b>Consortium Member 2</b>	<b>Consortium Member 3</b>	<b>Consortium Member 4</b>	<b>Consortium Member 5</b>	<b>Consortium Member 6</b>
	Total	Acronym	Acronym	Acronym	Acronym	Acronym	Acronym
<b>1. Number of transportation-related courses offered during the reporting period that were taught by faculty and/or teaching assistants who are associated with the UTC</b>							
Undergraduate courses	0	0	0	0	0	0	0
Graduate courses	0	0	0	0	0	0	0
<b>2. Number of students participating in transportation research projects during the reporting period funded by this grant</b>							
Undergraduate students in research	0	0	0	0	0	0	0
Graduate students in research	0	0	0	0	0	0	0
<b>3. Number of transportation-related advanced degree programs that utilize grant funds during the reporting period to support graduate students</b>							
Masters level programs	0	0	0	0	0	0	0
Doctoral level programs	0	0	0	0	0	0	0
<b>4. Number of students supported by this grant during the reporting period</b>							
Undergraduate students	0	0	0	0	0	0	0
Masters students	0	0	0	0	0	0	0
Doctoral students	0	0	0	0	0	0	0
<b>5. Number of students supported by this grant who received degrees during the reporting period</b>							
Undergraduate degrees	0	0	0	0	0	0	0
Masters degrees	0	0	0	0	0	0	0
Doctoral degrees	0	0	0	0	0	0	0
<b>6. Number and total dollar value of research projects selected for funding during the reporting period using UTC grant funds (Federal and/or Recipient Share) that you consider to be applied research and advanced research</b>							
Number of applied research projects	0	0	0	0	0	0	0
Dollar value of applied research projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Number of advanced research projects	0	0	0	0	0	0	0
Dollar value of advanced research projects	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



## Part I – Program-Wide Performance Indicator Definitions

Performance Indicator	Definition
<b>Indicator #1</b> Number of transportation-related courses offered during the reporting period that were taught by faculty and/or teaching assistants who were associated with the UTC: <ul style="list-style-type: none"> <li>• Undergraduate courses, or</li> <li>• Graduate courses.</li> </ul>	Report the number of undergraduate and graduate transportation-related courses. “Associated” means a faculty member or teaching assistant who receives Federal and/or matching funds through the Center to conduct research; and/or a faculty member or teaching assistant who participates actively in education and outreach activities funded by the UTC grant.
<b>Indicator #2</b> Number of students participating in transportation research projects during the reporting period funded by this grant: <ul style="list-style-type: none"> <li>• Undergraduate students in research, or</li> <li>• Graduate students in research.</li> </ul>	Report the number of undergraduate and graduate students involved in research projects funded by the grant, whether the student receives compensation or not. <i>One example of non-compensated involvement: As part of a course requirement, the student collects or analyzes data for a transportation research project, but is not compensated.</i>
<b>Indicator #3</b> Number of transportation-related advanced degree programs that utilize grant funds during the reporting period to support graduate students: <ul style="list-style-type: none"> <li>• Masters level programs, or</li> <li>• Doctoral level programs.</li> </ul>	Report the number of all advanced degree (masters and doctoral) programs that involved students supported through UTC Federal funds and/or match.
<b>Indicator #4</b> Number of students supported by this grant during the reporting period: <ul style="list-style-type: none"> <li>• Undergraduate students,</li> <li>• Masters level students, or</li> <li>• Doctoral level students.</li> </ul>	Report the number of undergraduate, masters and doctoral students who received financial support from the UTC Federal funds and/or match in the form of tuition relief, wages or stipend.
<b>Indicator #5</b> Number of students supported by this grant who received degrees during the reporting period: <ul style="list-style-type: none"> <li>• Undergraduate degrees,</li> <li>• Masters' level degrees, or</li> <li>• Doctoral level degrees.</li> </ul>	Report the number of undergraduate, masters and doctoral students who received financial support from the UTC Federal funds and/or match during all or any part of their studies AND received their degrees during the reporting period.



Performance Indicator	Definition
<p><b>Indicator #6</b></p> <p>Number and total dollar value of research projects selected for funding during the reporting period using UTC grant funds (Federal and/or recipient) that you consider to be applied research and advanced research:</p> <ul style="list-style-type: none"> <li>• Number of applied research projects,</li> <li>• Dollar value of applied research projects,</li> <li>• Number of advanced research projects, and</li> <li>• Dollar value of advanced research projects.</li> </ul>	<p>Report the number of applied and advanced research projects selected during the reporting period and their estimated budget (Federal and match funds). If an ongoing project was selected to receive additional funding, it should be counted as a phase 2, a continuation or a modification.</p> <p>Definitions of applied and advanced research:</p> <p><u>Applied Research</u> - the systematic study to gain knowledge or understanding necessary for determining the means by which a recognized and specific need may be met. (Office of Management &amp; Budget Circular A-11)</p> <p><u>Advanced Research</u> - An intermediate research effort between basic research (study to understand fundamental aspects of phenomena without specific applications in mind) and applied research. Study that bridges basic research and applied research, and includes transformational change rather than incremental advances. The investigation into the use of basic research results to an area of application without a specific problem to resolve.</p>



## Part II – UTC-Specific Indicators

Each Recipient must report UTC-specific performance metrics identified in your grant application annually for each category below. Include the description of the indicator(s) and report the corresponding metrics for the grant year. In the event a sub-Recipient university participates in more than one UTC, include only the metrics corresponding with your grant. If that is not possible, add a footnote to the metric(s) reported through another consortium. Email the completed UTC-specific performance metric report along with your program-wide indicator metrics within 30 days of the end of the grant year. Again, please do not send a PDF, add a cover page, or attach to another report except the UTC program-wide indicator metrics.

<b>Part II – UTC-Specific Performance Indicators</b>		
<b>UTC Name</b>		
<b>University</b>		
<b>Grant #</b>		
<b>Reporting Period</b>		
<b>Category</b>	<b>Description of indicator</b>	<b>Metric</b>
1. Research Activities and Capability		
2. Leadership		
3. Education and Workforce Development		
4. Technology Transfer and Collaboration		



**Exhibit C****Technical Report Documentation Form, DOT F 1700.7****Technical Report Documentation Page**

*General instructions: To add text, click inside the form field below (will appear as a blue highlighted or outlined box) and begin typing. The instructions will be replaced by the new text. If no text needs to be added, remove the form field and its instructions by clicking inside the field, then pressing the Delete key twice.*

*Please remove this field before completing form.*

<b>1. Report No.</b> Enter the report number assigned by the sponsoring agency.	<b>2. Government Accession No.</b>	<b>3. Recipient's Catalog No.</b>
<b>4. Title and Subtitle</b> Enter title and subtitle (use mixed case with initial caps for first word in title and subtitle) with volume and part numbers, if applicable.		<b>5. Report Date</b> Enter same date as is on the report cover. Enter full publication date, including month and date, if available, and full year. Example: June 5, 2014 or June 2014 or 2014
<b>7. Author(s)</b> Enter name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. Form of entry is first name, middle initial (if applicable), last name, and any additional qualifiers. Primary author is listed first. After each author name, enter ORCID ( <a href="https://orcid.org/">https://orcid.org/</a> ) URL, when available. Example: Josiah Carberry, Ph.D. <a href="https://orcid.org/0000-0002-1825-0097">https://orcid.org/0000-0002-1825-0097</a>		<b>6. Performing Organization Code</b> Enter any/all unique numbers assigned to the performing organization, if applicable.
<b>9. Performing Organization Name and Address</b> Enter the name and address of the organization(s) performing the research.		<b>8. Performing Organization Report No.</b> Enter any/all unique alphanumeric report numbers assigned by the performing organization, if applicable.
		<b>10. Work Unit No.</b>
		<b>11. Contract or Grant No.</b> Enter the number of the contract, grant, and/or project number under which the report was prepared. Specify whether the number is a contract, grant, or project number. Example: Contract # 8218



<p><b>12. Sponsoring Agency Name and Address</b>  Enter name and address of the organization(s) financially responsible for the work. After each agency name, enter funding type (e.g. SPR). Example: Missouri Department of Transportation (SPR)</p>	<p><b>13. Type of Report and Period Covered</b>  Enter the type of report (e.g. final, draft final, interim, quarterly, special, etc.) followed by the dates during which the work was performed.  Example: Final Report (June 2012-June 2014)</p>		
<p><b>15. Supplementary Notes</b>  Conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration.  Enter information not included elsewhere, such as translation of (or by), report supersedes, old edition number, alternate title (e.g. project name), hypertext links to documents or related information in the form of URLs, PURLs (preferred over URLs - <a href="https://archive.org/services/purl/help">https://archive.org/services/purl/help</a>), DOIs (<a href="https://www.doi.org/">https://www.doi.org/</a>), insertion of QR codes, copyright or disclaimer statements, etc. Edit boilerplate FHWA statement above if needed.</p>	<p><b>14. Sponsoring Agency Code</b>  If available, enter the office code or acronym if a sponsoring agency (such as FHWA or NHTSA) is named in field #12. For FHWA office codes, see <a href="https://fhwaapps.fhwa.dot.gov/foisp/hqphone.do">https://fhwaapps.fhwa.dot.gov/foisp/hqphone.do</a></p>		
<p><b>16. Abstract</b>  Enter a brief factual summary of the most significant information, including the purpose, methods, results, and conclusions of the work. When appropriate, the abstract should include advice on how the results of the research can be used. For guidance, please see ANSI/NISO Z39.14-1997 (R2015) Guidelines for Abstracts (<a href="https://www.niso.org/publications/ansiniso-z3914-1997-r2015-guidelines-abstracts">https://www.niso.org/publications/ansiniso-z3914-1997-r2015-guidelines-abstracts</a>).</p>			
<p><b>17. Key Words</b>  Enter words, terms, or phrases that identify important topics in the report. When possible, terms should be selected from the Transportation Research Thesaurus (TRT) (<a href="http://trt.trb.org">http://trt.trb.org</a>) in addition to terms not found in the TRT.</p>	<p><b>18. Distribution Statement</b>  No restrictions. This document is available through the National Technical Information Service, Springfield, VA 22161. Enter any other agency mandated distribution statements. Remove NTIS statement if it does not apply.</p>		
<p><b>19. Security Classif. (of this report)</b>  Enter security classification of this report (e.g. Unclassified). Reports carrying a security classification will require additional marking giving security and downgrading information as specified by the sponsoring agency.</p>	<p><b>20. Security Classif. (of this page)</b>  Enter the security classification of the form (e.g. Unclassified). When at all possible, this form should remain unclassified. If a classification is required, identify the classified items on the page by an appropriate symbol as per instruction from the sponsoring agency.</p>	<p><b>21. No. of Pages</b>  Enter the total number of pages in the report, including both sides of all pages and the front and back covers.</p>	<p><b>22. Price</b>  Refers to the price of the report. Leave blank unless applicable.</p>

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized



**Exhibit D****Research Project Requirement Template**

**(Research project name)**

**Recipient/Grant (Contract) Number:** (Provide center lead name/grant number only. If a consortium partner is leading this research effort then add their name after the center lead, e.g., University of Transit; University of Highway.)

**Center Name:**

**Research Priority:** (Select one of the seven research priorities that your Center focuses on - Improving Mobility of People and Goods; Reducing Congestion; Promoting Safety; Improving the Durability and Extending the Life of Transportation Infrastructure; Preserving the Environment; Preserving the Existing Transportation System; or Reducing Transportation Cybersecurity Risks.)

**Principal Investigator(s):****Project Partners:**

**Research Project Funding:** (Federal and non-Federal funding amounts.)

**Project Start and End Date:** (Format month/day/year to month/day/year.)

**Project Description:**

**Outputs:** (The results of the work performed. Describe what new research, technology, or process this research project has or will produce. The outputs could include processes and methods; data, hardware, software and databases; invention disclosures, patent filings, inventions, etc.)

**Outcomes/Impacts:** (Describe the application of the output and any changes this output has or will make to the transportation system, or its regulatory, legislative, or policy framework, including a description of products or patents, or a change in practice, or instances of research results informing policy decisions. Discuss how this research output will positively impact the transportation system in terms of safety, reliability, durability, costs, etc.)

**Additional guidelines:**

- Research project description sheets should not exceed two pages in length.
- Try to reduce acronym usage in your one page summary.
- Provide a brief caption under your photo.
- Use Times New Roman 12 font throughout document with the exception of project title use Calibri 12 and photo caption use Calibri 9.
- Single space in between sentences.



**Exhibit E****Reporting Inventions and Patents Using iEdison**

To comply with the Bayh-Dole Act of 1980, all UTC Recipients must report inventions and patents developed with UTC funding (in whole or in part) to USDOT through the web-based Interagency Edison (iEdison) electronic system. Through the iEdison system, the Recipient must also provide additional information relating to each invention, include, but not limited to, a confirmatory license acknowledging any Government rights to the invention, the Recipient's use of the invention (e.g., commercialization efforts), and the locations(s) of manufacture of goods or the provision of services attributable to the invention.

Most universities are already registered with iEdison through their office of technology transfer or technology licensing.

For the purposes of reporting UTC-related intellectual property in iEdison on a timely basis, you must first verify that your institution is registered.

- If your institution is NOT registered, click on the link below to request registration:

<https://www.nist.gov/iedison/registering-iedison>

- If your institution IS registered, no further action is needed at this time.

The Code of Federal Regulations governing iEdison may be found at: [https://grants.nih.gov/grants/bayh-dole.htm#se37.1.401\\_112](https://grants.nih.gov/grants/bayh-dole.htm#se37.1.401_112).



**Exhibit F****Federal Financial Accountability and Transparency Act Reporting Requirement**

Effective October 1, 2010, all lead Recipients awarded through the UTC Program must report subaward activity and executive compensation at [www.fsrs.gov](http://www.fsrs.gov) if the initial award is equal to or over \$25,000. Subrecipients have an obligation to provide the lead Recipient all information required for such reporting.

**1. Reporting First-Tier Subawards**

- a. The lead Recipient must report each action that obligates \$25,000 or more in Federal funds for a subaward. This does not include Recovery funds.
- b. The lead Recipient must report each obligating action. For subaward information, report no later than the end of the month following the month in which the obligation was made.

**2. Reporting Total Compensation of Lead Recipient Executives**

- a. The lead Recipient must report total compensation for each of the five most highly compensated executives for the preceding completed fiscal year.
- b. The lead Recipient must report executive total compensation by the end of the month following the month in which this award is made, and annually thereafter.

**3. Reporting of Total Compensation of Subrecipient Executives**

- a. The lead Recipient must report the names and total compensation of each subrecipient's five most highly compensated executives for the subrecipient's preceding completed fiscal year.
- b. The lead Recipient must report subrecipient executive total compensation by the end of the month following the month during which the lead Recipient makes the subaward. The lead Recipient must report subrecipient executive compensation information.

**4. Exemption.** If, in the previous tax year, your institution had gross income from all sources under \$300,000 the lead Recipient is exempt from the requirements to report subawards, and the total compensation of the five most highly compensated executives of any subrecipient. OST-R reserves the right to request authoritative documentation that would support a request to exercise this exemption.**5. Exception:** Federal regulations provides an exception from the executive compensation reporting requirements by a lead Recipient, or a subrecipient's organization (in case of reporting executive compensation for subrecipient executives). See 2 CFR 170.110 for additional information.**6.** All lead Recipients awarded through the UTC Program who do not have an exemption under 2 CFR 170.110 are required to have the necessary processes and systems in place to comply with the Federal Funding Accountability and Transparency Act of 2006 reporting requirements. OST-R encourages you to visit [www.fsrs.gov](http://www.fsrs.gov), which is the reporting portal for subrecipient and executive compensation information. In addition, USASpending at [www.usaspending.gov](http://www.usaspending.gov) has many resources available on the subrecipient and executive compensation reporting requirements.

**Exhibit G****List of Acronyms**

ANSI/NISO	American National Standards Institute/National Information Standards Organization
BIL	Bipartisan Infrastructure Law
CBI	confidential Business Information
CFR	Code of Federal Regulations
CUTC	Council of University Transportation Centers
DCAT-US	Data Catalog Vocabulary
DOT F	U.S. Department of Transportation Documentation Form
GIS	Geographic Information System
NTIS	National Information Service
ORCID	Open Researcher and Contributor ID
OST-R	Office of the Assistant Secretary for Research and Technology
RD&T	Research, Development and Technology
RH Display ID	Research Hub Display Identification
RiP	Research in Progress
ROSA P	Repository & Open Science Access Portal
SF	Standard Form
T2	Technology Transfer
TRID	Transportation Research International Documentation
TRT	Transportation Research Thesaurus
URL	Uniform Resource Locator
USDOT	U.S. Department of Transportation
UTC	University Transportation Center





U.S. Department of Transportation  
**Office of the Secretary of Transportation**

## UNIVERSITY TRANSPORTATION CENTERS (UTC)

### GENERAL PROVISIONS OF GRANTS

*For Grants Awarded in 2023  
Funded by the Bipartisan Infrastructure Law (BIL)*

**June 2023  
Version 1.0**

**Document Status**

<b>Item</b>	<b>Description</b>
Document Title	General Provisions of UTC Grants Awarded in 2023 Funded by the Bipartisan Infrastructure Law (BIL)
Version	1.0
Applicability	Infrastructure Investment and Jobs Act / Bipartisan Infrastructure Law (IIJA/BIL) Recipients

**Document Revision History**

<b>Version</b>	<b>Date</b>	<b>Description</b>



---

## CONTENTS

<b>I. GENERAL REQUIREMENTS.....</b>	<b>5</b>
<b>II. SPECIFIC STATUTORY REQUIREMENTS .....</b>	<b>8</b>
1. Non-Federal Match .....	8
a) Amount and Sources.....	8
b) Timing .....	8
c) Restriction on Use .....	8
2. Program Coordination.....	8
<b>III. SPECIFIC PROGRAMMATIC REQUIREMENTS .....</b>	<b>9</b>
1. Center Directors Involvement / Devotion of Time .....	9
2. Change in Center Director.....	9
3. Equipment .....	9
4. Foreign Travel .....	9
5. Citizenship of Students.....	10
6. Student Support.....	10
7. Consultant Services .....	10
8. Membership in CUTC.....	10
9. Project and Budget Changes .....	11
10. Conference Costs.....	11
11. Financial Management .....	11
12. System for Award Management.....	11
13. Invoicing and Payments .....	12
14. Site Visits .....	12
15. Coordination with USDOT's Priorities.....	12
16. USDOT Public Access Plan Compliance.....	12
17. Patents and Copyrights.....	13
a) Patent Rights.....	13
b) Copyrights .....	14
18. Collection of Data .....	15
19. Privacy.....	15
20. Civil Rights .....	15



a) Subgrants and Contracts .....	15
b) Compliance.....	16
21. State or Territorial Law .....	16
22. Ethics .....	16
a) Lobbying.....	16
b) Interest of Certain Federal Officials .....	16
c) Bonus or Commission .....	16
23. Certifications and Assurances .....	17
24. No-Cost Extensions and Grant Closeout.....	17
a) No-Cost Extensions .....	17
b) Closeout Procedures .....	17
APPENDI A.....	18
APPENDI B .....	28
APPENDI C.....	30
APPENDI D.....	32



## GENERAL PROVISIONS OF GRANTS FOR 2023 UNIVERSITY TRANSPORTATION CENTERS

### I. GENERAL REQUIREMENTS

1. The U.S. Department of Transportation (USDOT) provides stewardship of Federal funds awarded to their Recipients and has responsibility to deploy public resources in the most efficient manner. USDOT must manage and administer the Federal award in a manner so as to ensure that Federal funding is expended and associated programs are implemented in full accordance with the U.S. Constitution, Federal law and public policy requirements.
2. The Recipient must commence, carry out, and complete its work with all practicable dispatch, in a sound, economical, and efficient manner, and in accordance with the provisions hereof, the Grant Agreement, the *Grant Deliverables and Reporting Requirements for 2023 University Transportation Centers (UTCs)*, the activities outlined in the Recipient's application for funding including any revised, updated budget approved by the Office of the Assistant Secretary for Research and Technology (OST-R) Grants Manager, and all applicable laws, regulations, USDOT directives, and published Federal policies.
3. The Recipient must immediately notify OST-R of any change in local law, conditions, or any other event, including any litigation challenging the validity of or seeking interpretation of any Federal law or regulation applicable to the UTC Program, which may significantly affect the Recipient's ability to perform in accordance with the terms of this Grant. In addition, the Recipient must immediately notify OST-R of any decision pertaining to the Recipient's conduct of litigation that may affect USDOT interests or USDOT administration or enforcement of applicable Federal laws or regulations. Before the Recipient may join USDOT, or any of its Operating Administrations, as a named party to litigation, for any reason, the Recipient agrees first to inform OST-R; this proviso applies to any type of litigation whatsoever, in any form.
4. The *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (2 C.F.R. Part 200) apply to this Grant. This regulation streamlines the language from existing Office of Management & Budget (OMB) circulars into one consolidated set of guidance in the Code of Federal Regulations (CFR). This regulation sets forth standards for financial and program management, cost principles, matching funds, property standards, procurement standards, reports and record retention and access, audits, and termination and enforcement.
5. The Recipient must comply with the government-wide cost principles contained in *Subpart E Cost Principles in 2 C.F.R. Part 200*, formerly OMB Circular A-21 Cost Principles for Educational Institutions, for determining costs applicable to research and development and to training and other educational services performed by colleges and universities under Federal government grants.
6. The Recipient must comply with the uniform audit requirements for non-Federal entities contained in *Subpart F Audit Requirements in 2 C.F.R. Part 200*, formerly OMB Circular A-133 Audits of States, Local Governments, and Non-Profit Institutions. The Recipient must also permit authorized Federal representatives to inspect all of its own or a subrecipient's work, materials, payrolls, and other data related to the UTC Program, upon request.



7. The Recipient must apply all applicable sections of these Provisions to any subgrant(s) executed under this Grant.
8. USDOT does not assume any liability for accidents, illnesses, or claims arising out of any work supported by an award or for unauthorized use of patented or copyrighted materials. The Recipient is advised to take such steps as may be deemed necessary to insure or protect itself, its employees, and its property.
9. As a Recipient of USDOT assistance, the Recipient must review the list of parties excluded from Federal procurement or non-procurement programs located on the Excluded Parties List System at [www.sam.gov](http://www.sam.gov) before entering into a sub-agreement or contract, per DOT Order 4200.5E. The Recipient must also inform OST-R when it takes action to suspend or debar a contractor, person, or entity.
10. The Recipient must comply with the Federal Funding Accountability and Transparency Act of 2006 (FFATA). The FFATA legislation requires information on Federal awards (Federal financial assistance and expenditures) be made available to the public. The FFATA reporting system is the tool Federal lead Recipients use to capture and report subaward and executive compensation data regarding their first-tier subawards in order to meet the FFATA reporting requirements.
11. Executive Order 13513 (October 1, 2009) requires each Federal agency to encourage Recipients and subrecipients to adopt and enforce policies that ban text messaging while driving company-owned or -rented vehicles or while driving privately owned vehicles when on official business or when performing any work for or on behalf of the Government. OST-R encourages all of its Recipients and subrecipient to undertake initiatives to consider new rules and programs, and reevaluate existing programs, to prohibit text messaging while driving, and to conduct education, awareness, and other outreach for employees about the safety risks associated with texting while driving. These initiatives should encourage voluntary compliance with the organization's text messaging policy while off duty.
12. Executive Order 13864 (March 21, 2019) on Improving Free Inquiry, Transparency, and Accountability at Colleges and Universities requires the heads of each Federal agency to encourage institutions of higher education to foster environments that promote open, intellectually engaging, and diverse debate, including through compliance with the First Amendment for public institutions and compliance with stated institutional policies regarding freedom of speech for private institutions. Free inquiry is an essential feature of our Nation's democracy, and it promotes learning, scientific discovery, and economic prosperity. Recipients and subrecipients should foster environments that promote open, intellectually engaging, and diverse debate in order to avoid environments that stifle competing perspectives, impede research and undermine learning.
13. Executive Order 8845 (February 10, 2012) on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking. Recipients should familiarize themselves with the Memorandum supporting "improper political interference in the conduct of scientific research and in the collection of scientific or technological data, and that prevents the suppression or distortion of scientific or technological findings, data, information, conclusions, or technical results." This memo focuses on the importance of strengthening evidence-based policy and decision making by making federal programs and policies more efficient and effective.



- 
14. Recipients shall ensure that all published documents (including graphics) must comply with and be accessible in accordance with current requirements/interpretation of Section 508 of the Rehabilitation Act of 1973, as Amended (29 U.S.C. § 792)



## II. SPECIFIC STATUTORY REQUIREMENTS

### **1. Non-Federal Match**

#### **a) Amount and Sources**

The funds awarded under this Grant as stated in the Grant Agreement and any Modifications as authorized by 49 U.S.C. § 5505 are subject to a non-Federal match. A National or Regional UTC is required to provide non-Federal matching funds at 100 percent of the amount of Federal funds awarded; Tier 1 UTCs are required to provide non-Federal matching funds at 50 percent of the amount of Federal funds awarded.

As established in Federal regulations, matching funds may be cash or in-kind and must, among other stated OMB requirements, be used to accomplish program objectives and the purpose of this Grant, and be fully documented and fully accounted for in the Recipient's records as required in 2 C.F.R. 200.300 – 200.337.

- The non-Federal share of UTC costs may include funds provided to a Recipient under §§ 504(b) or 505 of Title 23, United States Code. Those sections refer, respectively, to the local/tribal technical assistance and state planning and research programs managed by the Federal Highway Administration.
- With prior approval from your Grant Manager, program income may be used to meet the match requirement of the grant award; however, the amount of the grant award remains the same.
- The UTC Program accepts unrecovered indirect costs as match with prior approval from your Grant Manager. Unrecovered indirect cost means the difference between the amount charged to the grant award and the amount which could have been charged to the grant award under the Center's approved negotiated indirect cost rate. Such costs must be fully documented for audit purposes.

#### **b) Timing**

Federal regulations do not require matching funds on a project-by-project basis. The Grant Manager will monitor all Federal financial reports and requests for reimbursement of expenses to ensure reasonable progress over time toward meeting the non-Federal match requirement. No specific percentage of match funding is required to be documented during the Grant's life except at the Grant's termination when the full requirement must be met. However, Recipients are expected to show reasonable progress toward meeting the match requirement. Situations that would be considered lack of evidence toward reasonable progress include reporting no match on the first few invoices, not increasing the amount of match reported on two or more consecutive financial reports, or not narrowing any gap between the Federal funds spent and matching funds reported. In the absence of such evidence, OST-R may require the Recipient to demonstrate its ability to match the funds already awarded before paying any additional invoices or awarding any additional funds that may be made available under the Grant.

#### **c) Restriction on Use**

Any restriction on the use of Federal funds applies equally to non-Federal matching funds.

### **2. Program Coordination**

Under 49 U.S.C. § 5505, OST-R is responsible for coordinating UTC Program activities and for reviewing and evaluating the UTCs on an annual basis. The Recipient must provide the information required by OST-R in its *Grant Deliverables and Reporting Requirements for University Transportation Centers* and such other information as OST-R may occasionally request in order to fulfill this responsibility.



### **III. SPECIFIC PROGRAMMATIC REQUIREMENTS**

Approvals discussed below must be issued by a Grant Manager in OST-R's UTC Program office.

#### **1. Center Directors Involvement / Devotion of Time**

The Center Director's meaningful direct involvement in the Center's operations will include but will not be limited to activities such as:

- In-person attendance at all UTC Program related meetings, symposiums and conferences.
- Keeping the Grant Manager and the UTC Program Director abreast of new/evolving developments at the Center.
- Responding to Program enquiries in a timely manner as specified by the UTC Program Director.
- Adopting and follow prescribed Program protocols in normal Center operations.
- Conducting frequent progress meeting with Consortia member teams.
- Ensuring on time submission of grant deliverables and reporting requirements.

#### **2. Change in Center Director**

The Department's decision to award a UTC Grant to a Recipient is based to a considerable extent upon its evaluation of the proposed Center Director's knowledge of the field of study and his/her capabilities to lead a UTC. Should the Recipient become aware that the Center Director will: 1) devote substantially more or less effort to the Center than had previously been committed to OST-R in the Grant Agreement; 2) sever his or her connection with the Recipient; or 3) otherwise relinquish active direction of the UTC, the Recipient must promptly notify OST-R. Prior written (e-mail recommended) approval by OST-R is required for any temporary or permanent replacement of the Center Director. In the absence of an approved Center Director, OST-R may choose to negotiate an appropriate modification to the Grant Agreement or to begin termination procedures.

#### **3. Equipment**

A written (e-mail recommended) request for prior approval from OST-R is required to purchase equipment that has a unit cost of \$5,000 or more. The request must contain the intended purpose/justification for the equipment purchase, name of project(s) associated with its use, how the equipment will be used, and a quote from the vendor containing vendor name, address, telephone number, item description, quantity, item cost, and final price. Unless otherwise requested by the Recipient, all legal rights to equipment purchased with UTC funds must vest in the Recipient upon acquisition; furthermore, § 200.313 "Equipment" of the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* lays out requirements for use and disposition of equipment.

#### **4. Foreign Travel**

A written (e-mail recommended) request for prior approval from OST-R is required for travel outside of the United States and its territories that is paid with either Federal or matching funds. In order to be approved, requests must include:

- (a) the need for the proposed travel and the value to be gained by the Center;



- 
- (b) a written justification that states the name and relationship of the traveler to the UTC;
  - (c) a description of how the travel will further the goals of the UTC Program;
  - (d) a detailed itinerary (i.e., travel dates, location, lodging) and breakdown of planned expenses (i.e., airfare cost, lodging cost, ground transportation, and per diem) with a final total cost; and
  - (e) the endorsement of the Center Director.

All travel requests are evaluated on a case-by-case basis, and traveler(s) are expected to have a significant role or involvement as it relates to their official and representational duties. Requests containing all the required information must be submitted at least 60 days prior to the start of foreign travel. **No requests submitted after the travel has begun ill be approved.** Inclusion of an amount for foreign-travel costs in a UTC's approved budget does not satisfy the requirement for prior approval.

## **5. Citizenship of Students**

Students who receive awards (including UTC Student of the Year Award), tuition/fee waivers and any other non-work related compensation must be a U.S. citizen or permanent resident of the U.S. **There is no exception to this rule.**

## **6. Student Support**

Grant funds may be used to provide funding to students attending institutions of higher education who participate in activities necessary to the fulfillment of the UTC's research, education, and technology transfer programs. Funding provided to a student, which may be in the form of wages or tuition support, must be compensation for work performed within the UTC Program. Such work must be used to fulfill a part of the student's degree program. This type of funding to students is considered to be compensation paid as, or in lieu of, wages for work as described in § 200.466 "Scholarships and student aid costs" of the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*.

In addition to the type of student funding described above, scholarships and summer internships utilizing UTC funding may be offered to students attending institutions of higher education studying within an academic program that is relevant to the UTC Program's purpose.

Students who are non-citizens can be paid wages for work on the Grant as those wages are "work-related" compensation. In addition, if the tuition waiver is based on a student's work on the Grant, then this type of financial support is work-related compensation and can be given to a non-citizen student.

## **7. Consultant Services**

The Recipient should utilize the services of its own officers or employees to the maximum extent in managing and performing activities supported by this Grant. Where it is necessary for the Recipient to enter into a subaward for the services of persons who are not its officers or employees, it is expected to do so in accordance with written organizational standards which provide for consideration of the factors outlined in the government cost principles. Review and approval from your Grant Manager is needed prior to retaining services of a foreign based and non-US citizen consultant.

## **8. Membership in CUTC**

USDOT frequently collaborates with the Council of University Transportation Centers (CUTC), a private, not-



for-profit organization that works to improve and enhance university research and education in transportation and related areas. CUTC's membership includes many of the leading university-based transportation programs in the United States. In recognition of the forum that CUTC provides to its member universities to interact with each other and to promote national interest in transportation research and education, CUTC membership dues and necessary travel costs to CUTC membership meetings are allowable costs under this Grant. Any other costs associated with CUTC events, such as sponsorship of the Annual Banquet, are **not** allowable under this Grant.

## **9. Project and Budget Changes**

The Recipient must obtain prior written approval from OST-R before making any significant changes in the scope or objectives of the Recipient's application for funding under this Grant. The Recipient must also obtain prior written approval from OST-R for transfers of funds among direct-cost budget categories if the cumulative amount of such transfers exceeds 10 percent of the Center's last approved budget for the fiscal year being adjusted (including Federal and matching shares).

## **10. Conference Costs**

Section 200.432 "Conferences" of the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* defines conference as a meeting, retreat, seminar, symposium, workshop or event whose primary purpose is the dissemination of technical information beyond the non-Federal entity, i.e., a lead Center and its subrecipients, and is necessary and reasonable for successful performance under the Federal award. Allowable conference costs paid by the Center as a sponsor or host of the conference may include rental of facilities, speakers' fees, costs of meals and refreshments, local transportation, and other items incidental to such conferences, unless expressly forbidden by the Recipient's internal policies. Thus, the costs of modest meals and beverage services at conferences are allowable under this Grant if the conferences are attended by persons other than the Recipient's officers or employees. **No funds available under this Grant may be spent on alcoholic beverages for entertainment purposes or personal consumption.**

## **11. Financial Management**

The Recipient's financial management systems must provide for accurate, current, and complete disclosure of the UTC's finances. Financial records must identify the source and use of all funds and must show effective control over and accountability for all funds, property, and other assets.

## **12. System for Award Management**

Each Recipient is required to:

- be registered in the System for Award Management (SAM, <http://www.sam.gov>),
- have a Unique Entity ID (UEI), and
- continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or application or plan under consideration by a Federal awarding agency.

Recipients that have Federal contracts, grants and cooperative agreement awards with a cumulative total value greater than \$10,000,000 must provide information to SAM about certain civil, criminal, and administrative proceedings that reached final disposition within the most recent five-year period, that were connected with



the award or performance of a Federal award.

### **13. Invoicing and Payments**

Federal funded programs involving advances to various organizations outside the Federal government constitute a significant portion of the Federal budget. Advances of cash from the U.S. Treasury to such organizations for the purpose of financing current operations under Federal programs have a substantial impact on Treasury financing costs and the level of the public debt and are therefore unallowable. For that reason, the Recipient must request reimbursement of expenses incurred by submitting invoices using Standard Form (SF) 270 (Request for Advance or Reimbursement) electronically via the Delphi eInvoicing System (click-on [www.transportation.gov](http://www.transportation.gov)). The Delphi eInvoicing System website provides information about the system, including Recipient web-based training, the eAuthentication certification process, and additional training materials. Recipients must contact their Grant Manager to request access to the system. Requests for payment should be submitted on either a monthly or quarterly basis, but not more frequently than monthly. Recipient must receive payments through electronic fund transfers by the Automated Clearing House Payment System or by another electronic system that may replace it during the life of the Grant.

When requesting reimbursement of costs incurred or credit for cost share incurred, the Recipient shall submit supporting cost detail to clearly document all costs incurred. As supporting cost detail, the Recipient shall include a detailed breakout of all costs incurred, including direct labor, indirect costs, other direct costs, and travel.

### **14. Site Visits**

The Federal government, through its authorized representatives, has the right, at all reasonable times, to make site visits to review UTC Program accomplishments and management control systems and to provide such technical assistance as may be required. If any site visit is made by the Federal government on the premises of the Recipient or any subrecipient, the Recipient must ensure that all reasonable facilities and assistance are provided for the safety and convenience of the government representatives in the performance of their duties. All site visits and evaluations must be performed in such a manner as will not unduly delay the Recipient's work.

### **15. Coordination with USDOT's Priorities**

To encourage the transfer of knowledge and a current understanding of national transportation priorities, OST-R intends to promote a high level of communication and collaboration between the Recipient and USDOT and its operating administrations under this Grant. OST-R expects Recipients to participate in occasional meetings of UTC and/or USDOT experts on high-priority topics. Reasonable costs incurred by a Recipient to support these interactions with USDOT, unless otherwise restricted by Federal regulations, are allowable under this Grant. To ensure the technical aspects align with USDOT's strategic goals.

### **16. USDOT Public Access Plan Compliance**

The Recipient must ensure compliance with the requirements of the USDOT Public Access Plan, which establishes objectives to ensure public access to Publications and Digital Data Sets arising from USDOT-managed research and development programs. More information on how to comply with the plan is provided in the *Grant Deliverables and Reporting Requirements for University Transportation Centers* document.



## **17. Patents and Copyrights**

To comply with the Bayh-Dole Act of 1980, the Recipient must report inventions and patents developed with UTC funding (in whole or in part) to USDOT through the web-based Interagency Edison ([iEdison](#)) electronic system. Most universities are already registered with iEdison through their office of technology transfer or office of technology licensing.

For the purposes of reporting UTC-related intellectual property in iEdison on a timely basis, you must first verify that your institution is registered. If your institution is not registered, go to <https://www.nist.gov/iedison> to request registration. If your institution is registered, no further action is needed at this time.

### **a) Patent Rights**

#### **(1) Allocation of Principal Rights**

The Recipient may retain the entire right, title and interest throughout the world to each innovation, technical solution or unique increase to the general body of knowledge resulting from the work performed under this Grant subject to the provisions of this clause and 35 U.S.C. § 203. For the purpose of this clause, these innovations, technical solutions and increases in knowledge must be deemed inventions. With respect to any invention in which Recipient retains title, USDOT must have a nonexclusive, irrevocable, paid-up license to practice or have practiced for or on its behalf the invention throughout the world.

#### **(2) Election of Title**

Recipient will elect in writing whether or not to retain title to any such invention by notifying USDOT within two (2) years of disclosure to the USDOT. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the deadline for receipt by USDOT of Recipient's written election of title is hereby shortened to a date that is no more than ninety (90) days prior to the end of the statutory period.

#### **(3) Conditions When USDOT May Obtain Title**

The Recipient will convey to USDOT, upon written request, all right, title and interest to any invention –

- 3.1 If Recipient fails to disclose or elect title to an invention within the times specified in subsection (2), above, or affirmatively elects in a writing to USDOT not to retain title; provided that USDOT may only request title within sixty (60) days after learning of the failure of Recipient to disclose or elect within the specified times.
- 3.2 In those countries in which Recipient either fails to file or affirmatively elects in a writing to USDOT not to file a patent application.

#### **(4) Recipient License**

The Recipient will retain a nonexclusive, royalty-free license throughout the world in each invention to which USDOT obtains title, except in cases where Recipient fails to disclose the invention within the times specified in subsection (2), above. The Recipient's license is transferable only with the approval of USDOT.

#### **(5) Recipient Action**



5.1 For those inventions in which the Recipient has elected not to retain title to an invention or has mandatorily transferred title to USDOT of an invention, the Recipient hereby agrees to execute all papers necessary to file patent applications on such inventions and to establish the government's rights in the inventions.

5.2 For those inventions in which the Recipients has elected to retain title to an invention, the Recipient agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering an invention, the following statement, "*This invention was made with government support under (insert grant number) awarded by the U.S. Department of Transportation. The government has certain rights in the invention.*"

#### **(6) Reporting on Utilization of Inventions**

The Recipient agrees to submit annual reports on the utilization of an invention or on efforts at obtaining such utilization that are being made by the Recipient. Such reports must include information regarding the status of development, date of first commercial sale or use, and such other data and information as USDOT may reasonably specify. The Recipient also agrees to provide additional reports as may be requested by USDOT in connection with any march-in proceeding undertaken by USDOT in accordance with paragraph (7) of this clause. As required by 35 U.S.C. § 202(c)(5), USDOT agrees it will treat such information as privileged and confidential and thus not subject to disclosure under section 552 of Title 5 of the United States Code.

#### **(7) March-in Rights**

The Recipient agrees that with respect to any invention in which it has retained title, USDOT has the right in accordance with the procedures in 37 C.F.R. § 401.6 and any supplemental regulations of USDOT to require the Recipient to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Recipient refuses such a request USDOT has the right to grant such a license itself if it determines that:

7.1 Such action is necessary because the Recipient has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use.

7.2 Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Recipient;

7.3 Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the Recipient; or

7.4 Action is necessary because an agreement required to substantially manufacture an invention in the United States by a licensee was not obtained or such requirement was not waived by the Department of Transportation or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of its such an agreement.

#### **b) Copyrights**

(1) The author or the Recipient's organization may copyright any books, publications, or other copyrightable materials developed in the course of or under this Grant, but USDOT hereby



reserves a royalty-free, nonexclusive and irrevocable license to reproduce, publish, or otherwise use and to authorize others to use the work for government purposes.

(2) The Recipient must not incorporate material copyrighted by others into any work product delivered under this Grant unless it has acquired for USDOT a royalty-free, nonexclusive and irrevocable license to reproduce, publish, or otherwise use and to authorize others to use the work for government purposes.

(3) The Recipient may arrange for publication of initial reports of original research, supported in whole or in part by USDOT funds, in primary scientific journals and copyright by the journal unless the journal's copyright policy would preclude an individual from making or having made by any means available, without regard to the copyright of the journal and without royalty, a single copy of any such article for the individual's own use.

(4) The Recipient must be responsible for any losses that result from or arise out of the negligent use of or breach of provisions by its employees or agents under this Grant regarding the publication, translation, reproduction, delivery, use, or disposition of any data or protected privacy information furnished under this Grant provided that this provision must not be deemed a waiver by the Recipient of any immunities to which it may be entitled under applicable Federal, State, or Tribal law.

## **18. Collection of Data**

The Recipient may use funds awarded under this Grant to collect information incidental to a UTC activity, but such collection of information is not considered USDOT-sponsored. Persons collecting such information are prohibited from representing to their respondents that the information is being collected for, or in association with, the Federal government except with OST-R's prior written approval and determination that the information collection complies with the OMB report clearance procedures set forth in 5 C.F.R. Part 1320, "Controlling Paperwork Burdens on the Public."

## **19. Privacy**

Should the Recipient, or any subrecipient, contractor, or employee administer any system of records on behalf of USDOT, the Privacy Act of 1974 (5 U.S.C § 552a) imposes information restrictions on the party administering the system of records.

## **20. Civil Rights**

The Recipient must not discriminate against any employee or other Recipient of USDOT funds or applicant for such positions because of race, color, creed, sex, sexual orientation, disability, age, or national heritage. The Recipient must take affirmative action to ensure that all applicants and employees are treated equally, without regard to their race, color, creed, sex, sexual orientation, disability, age, or national heritage. The Recipient may target minorities and women as beneficiaries of Center programs for the purposes of achieving diversity, but they may not exclude non-minorities and men from those same programs.

### **a) Subgrants and Contracts**

The Recipient must insert notifications and clauses identified in Appendix A in any subgrant or third-party contract agreement, Requests for Proposals, solicitation for bids, or material implementing UTC Program



activities.

**b) Compliance**

In the event of the Recipient's non-compliance with the Civil Rights provisions of this Grant or with the applicable rules, regulations, or orders, this Grant may be canceled, terminated, or suspended, in whole or in part, and the Recipient may be declared ineligible for further Federal funding.

- (1) The Recipient must furnish all information and reports required by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by USDOT and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (2) The Recipient must comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d), with USDOT regulations entitled, "Nondiscrimination in Federally-Assisted Programs of the U.S. Department of Transportation -- Effectuation of Title VI of the Civil Rights Act of 1964", and any other applicable regulations issued pursuant thereto.

**21. State or Territorial Law**

Anything in the Grant to the contrary notwithstanding, nothing in the Grant must require the Recipient to observe or enforce compliance with any provision thereof, perform any other act, or do any other thing in contravention of any applicable State or territorial law; provided, that if any of the provisions of the Grant Agreement violate any applicable State or territorial law or if compliance with the provisions of the Grant would require the Recipient to violate any applicable State or territorial law, the Recipient will at once notify OST-R to the end that the Recipient may proceed as soon as possible with the program.

**22. Ethics**

The Recipient must maintain a written code or standards of conduct that must govern the performance of its officers, employees, board members, or agents engaged in the award and administration of subgrants or contracts supported by Federal assistance. This code must prohibit the Recipient's officers, employees, board members, or agents from any acts that present a real or apparent conflict of interest for any person or organization participating in the UTC Program (see 2 C.F.R. 200.112).

**a) Lobbying**

The Recipient must comply with the provisions of 31 U.S.C. § 1352 as implemented by USDOT regulations in "Restrictions on Lobbying" (49 C.F.R. Part 20 & 2 C.F.R. 200.450).

**b) Interest of Certain Federal Officials**

No member of, or delegate to, the Congress of the United States of America must be admitted to any share or part hereof or to any arising benefits.

**c) Bonus or Commission**

The Recipient affirms that it has not paid, and agrees not to pay, any bonus or commission to any person(s) or organizations for the purpose of obtaining approval of its application for Federal financial assistance for this project.



### **23. Certifications and Assurances**

The Recipient must comply with DOT Order No. 1050.2A, USDOT Standard Title VI Assurances and Non-Discrimination Provisions. The USDOT Standard Title VI Assurances and Non-Discrimination Provisions form is included in Appendix A. This form must be completed and signed within 30 days of receiving notification of grant award.

### **24. No-Cost Extensions and Grant Closeout**

#### **a) No-Cost Extensions**

The performance period for the Grant terminates on the date specified in the Grant Agreement. However, if needed, the Recipient must submit a request for a one-time no-cost extension, up to one-year, to the Grant Manager at minimum 90 days prior to the termination date by email with a justification, a revised period of performance, close-out budget showing how the Recipient intends to spend the remainder of the funding, and any other requested documentation. **This one-time extension may not be exercised merely for the purpose of using unobligated balances or starting new projects.**

#### **b) Closeout Procedures**

Recipients must submit the following documents for grant closeout no later than 120 calendar days after the end date of the period of performance:

- (1) All grant deliverables and requirements
- (2) Final Federal Financial Report (SF 425)
- (3) Final Request for Reimbursement (SF 270)
- (4) Real Property Status Report (SF 429), if applicable;
- (5) Tangible Personal Property Report (SF 428 B), if applicable;
- (6) Disclosure of Invention Report (DOT 2000.1), if applicable;
- (7) Record of Invention (DOT 2000.2), if applicable; and
- (8) Invention Rights Report (DOT 2000.3), if applicable.

If any of the last five forms listed above are not applicable, then submit an email to the Grant Manager stating such. Additional closeout information can be found at 49 C.F.R. §§ 19.71 to 19.73 and 2 C.F.R. 200.343.



**APPENDIX A****STANDARD TITLE VI/NONDISCRIMINATION ASSURANCES****DOT Order No. 1050.2A**

The (Name of Recipient) (herein referred to as the “Recipient”), **HEREBY AGREES THAT**, as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation (USDOT), through the Office of the Assistant Secretary for Research and Technology (OST-R), is subject to and will comply with the following:

**Statutory/Regulatory Authorities**

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 C.F.R. Part 21 (entitled *Nondiscrimination In Federally-Assisted Programs Of The U.S. Department Of Transportation Effectuation Of Title VI Of The Civil Rights Act Of 1964*);
- 28 C.F.R. § 50.3 (U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects;
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), prohibits discrimination on the basis of age);
- The Civil Rights Restoration Act of 1987, (PL 100-209, (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid Recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);
- Title II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations 49 C.F.R. parts 37 and 38; and
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).

The preceding statutory and regulatory cites hereinafter are referred to as the “Acts” and “Regulations,” respectively.



## **General Assurances**

In accordance with the Acts, the Regulations, and other pertinent directives, circulars, policy, memoranda, and/or guidance, the Recipient hereby gives assurance that it will promptly take any measures necessary to ensure that:

*“No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity,” for which the Recipient receives Federal financial assistance from USDOT, including the OST-R.*

The Civil Rights Restoration Act of 1987 clarified the original intent of Congress, with respect to Title VI and other Nondiscrimination requirements (The Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973), by restoring the broad, institutional-wide scope and coverage of these nondiscrimination statutes and requirements to include all programs and activities of the Recipient, so long as any portion of the program is Federally assisted.

## **Specific Assurances**

More specifically, and without limiting the above general Assurance, the Recipient agrees with and gives the following Assurances with respect to its Federally assisted University Transportation Centers Program:

1. The Recipient agrees that each “activity,” “facility,” or “program,” as defined in §§ 21.23 (b) and 21.23 (e) of 49 C.F.R. § 21 will be (with regard to an “activity”) facilitated, or will be (with regard to a “facility”) operated, or will be (with regard to a “program”) conducted in compliance with all requirements imposed by, or pursuant to the Acts and the Regulations.
2. The Recipient will insert the following notification in all solicitations for bids, Requests for Proposals for work, or material subject to the Acts and the Regulations made in connection with all University Transportation Centers Program and, in adapted form, in all proposals for negotiated agreements regardless of funding source:

*“The (Name of Recipient), in accordance with the provisions of Title VI of the Civil Rights Act of 1 ( Stat. 2 2, 2 U.S.C. 2000d to 2000d- ) and the Regulations, hereby notifies all bidders that it will affirmatively insure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.”*

3. The Recipient will insert the clauses of Appendix A, Exhibits A through E of this Assurance in every contract or agreement subject to the Acts and the Regulations.
4. The Recipient will insert the clauses of Appendix B of this Assurance, as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a Recipient.



- 
5. That where the Recipient receives Federal financial assistance to construct a facility, or part of a facility, the Assurance will extend to the entire facility and facilities operated in connection therewith.
  6. That where the Recipient receives Federal financial assistance in the form, or for the acquisition of real property or an interest in real property, the Assurance will extend to rights to space on, over, or under such property.
  7. That the Recipient will include the clauses set forth in Appendix C and Appendix D of this Assurance, as a covenant running with the land, in any future deeds, leases, licenses, permits, or similar instruments entered into by the Recipient with other parties:
    - a. for the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
    - b. for the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.
  8. That this Assurance obligates the Recipient for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the Assurance obligates the Recipient, or any transferee for the longer of the following periods:
    - a. the period during which the property is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits; or
    - b. the period during which the Recipient retains ownership or possession of the property.
  9. The Recipient will provide for such methods of administration for the program as are found by the Secretary of Transportation or the official to whom he/she delegates specific authority to give reasonable guarantee that it, other Recipients, subrecipients, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the Acts, the Regulations, and this Assurance.
  10. The Recipient agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the Acts, the Regulations, and this Assurance.

By signing this ASSURANCE, (*Name of Recipient*) also agrees to comply (and require any subrecipients, contractors, successors, transferees, and/or assignees to comply) with all applicable provisions governing the OST-R access to records, accounts, documents, information, facilities, and staff. You also recognize that you must comply with any program or compliance reviews, and/or complaint investigations conducted by OST-R. You must keep records, reports, and submit the material for review upon request to OST-R, or its designee in a timely, complete, and accurate way. Additionally, you must comply with all other reporting, data collection, and evaluation requirements, as prescribed by law or detailed in program guidance.

(*Name of Recipient*) gives this ASSURANCE in consideration of and for obtaining any Federal grants, loans, contracts, agreements, property, and/or discounts, or other Federal-aid and Federal financial assistance



General Provisions of UTC Grants Awarded in 2023 (June 2023)

Page **21**

---

extended after the date hereof to the Recipients by the U.S. Department of Transportation under the University Transportation Centers Program. This ASSURANCE is binding on (Name of Recipient), subrecipients, contractors, subcontractors and their subcontractors, transferees, successors in interest, and any other participants in the University Transportation Centers Program. The person(s) signing below is authorized to sign this ASSURANCE on behalf of the Recipient.

---

(*Name of Recipient*)

by \_\_\_\_\_  
(*Signature of Authorized Official*)

---

(*Print Name and Title of Authorized Official*)

DATED \_\_\_\_\_



U.S. Department of Transportation  
**Office of the Secretary of Transportation**

## E HIBIT A

During the performance of this grant, the Recipient, for itself, its assignees, and successors in interest (hereinafter referred to as the “Recipient”) agrees as follows:

1. **Compliance with Regulations:** The Recipient (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Office of the Secretary for Research and Technology (OST-R), as they may be amended from time to time, which are herein incorporated by reference and made a part of this grant.
2. **Non-discrimination:** The Recipient, with regard to the work performed by it during the grant, will not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The recipient will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the grant covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the recipient for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the recipient of the recipient's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** Any subcontractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the OST-R to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a subcontractor is in the exclusive possession of another who fails or refuses to furnish the information, the subcontractor will so certify to the Recipient or the OST-R, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a subcontractor's noncompliance with the Non-discrimination provisions of this grant, the Recipient will impose such contract sanctions as it or the OST-R may determine to be appropriate, including, but not limited to:
  - a. withholding payments to the subcontractor under any contract until the subcontractor complies; and/or
  - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Recipient will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. Any subcontractor will take action with respect to any subcontract or procurement as the Recipient or the OST-R may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the subcontractor becomes involved in, or threatened with litigation by a supplier or other third party



---

because of such direction, the subcontractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Recipient or subcontractor may request the United States to enter into the litigation to protect the interests of the United States.



**E HIBIT B****CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY**

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

**NOW THEREFORE**, the U.S. Department of Transportation as authorized by law and upon the condition that the (Name of Recipient) will accept title to the lands and maintain the project constructed thereon in accordance with the Uniform Administrative Requirement, Cost Principles, and Audit Requirements for Federal Awards (2 C.F.R. Part 200), the regulations for the administration of the University Transportation Centers Program, and the policies and procedures prescribed by the Office of the Secretary of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim, and convey unto the (Name of Recipient) all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

**(HABENDUM CLAUSE)**

**TO HAVE AND TO HOLD** said lands and interests therein unto (Name of Recipient) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the (Name of Recipient), its successors and assigns.

The (Name of Recipient), in consideration of the conveyance of said lands and interest in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed ,] and] (2) that the (Name of Recipient) will use the lands and interests in lands and interest in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended , and (3) that in the event of breach of any of the above-mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].

Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)



**E HIBIT C****CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM**

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the (*Name of Recipient*) pursuant to the provisions of Assurance 7(a):

- A. The (Recipient, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:
- 1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (Recipient, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
- B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Non-discrimination covenants, (*Name of Recipient*) will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.
- C. With respect to a deed, in the event of breach of any of the above Non-discrimination covenants, the (*Name of Recipient*) will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the (*Name of Recipient*) and its assigns.

( Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)



**E HIBIT D****CLAUSES FOR CONSTRUCTION/USE AND ACCESS TO REAL PROPERTY ACQUIRED  
UNDER THE ACTIVITY, FACILITY OR PROGRAM**

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by (Name of Recipient) pursuant to the provisions of Assurance 7(b):

- A. The (Recipient, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits or, or otherwise be subjected to discrimination, (3) that the (Recipient, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.
- B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above of the above Non-discrimination covenants, (Name of Recipient) will have the right to terminate the (license, permits, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.
- C. With respect to deeds, in the event of breach of any of the above Non-discrimination covenants, (Name of Recipient) will there upon revert to and vest in and become the absolute property of (Name of Recipient) and its assigns.

( Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)



## E HIBIT E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

**Pertinent Non-Discrimination Authorities:**

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat.252), prohibits discrimination on the basis of race, color, national origin), and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), prohibits discrimination on the basis of sex;
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, prohibits discrimination on the basis of disability; and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 U.S.C. § 471, Section 47123, as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid Recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination of the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100); and
- Title I of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).



**APPENDIX B****REQUIREMENTS REGARDING DELINQUENT TAX LIABILITY  
OR A FELONY CONVICTION UNDER ANY FEDERAL LAW**

As required by sections 415 and 416 of Title IV, Division L of the Consolidated Appropriations Act, 2014 (Pub. L. 113-76), and similar provisions in subsequent appropriations acts, the funds provided under this award must not be used to enter into a contract, memorandum of understanding, or cooperative agreement with, make a grant to, or provide a loan or loan guarantee to, any corporation that:

- (1) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless an agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or
- (2) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

The Recipient therefore agrees:

1. **Definitions.** For the purposes of this exhibit, the following definitions apply:

**“Covered Transaction”** means a transaction that uses any funds under this award and that is a contract, memorandum of understanding, cooperative agreement, grant, loan, or loan guarantee.

**“Felony Conviction”** means a conviction within the preceding 24 months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the United States Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. 3559.

**“Participant”** means the Recipient, an entity who submits a proposal for a Covered Transaction, or an entity who enters into a Covered Transaction.

**“Tax Delinquency”** means an unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2. **Mandatory Check in the System for Award Management.** Before entering a Covered Transaction with another entity, a Participant must check the System for Award Management (*the “SAM”*) at <http://www.sam.gov/> for an entry describing that entity.



**3. Mandatory Certifications.** Before entering a Covered Transaction with another entity, a Participant must require that entity to:

- (1) certify whether the entity has a Tax Delinquency; and
- (2) certify whether the entity has a Felony Conviction.

**4. Prohibition.** If

- (1) the SAM entry for an entity indicates that the entity has a Tax Delinquency or a Federal Conviction,
- (2) an entity provides an affirmative response to either certification in section 3, or
- (3) an entity's certification under section 3 was inaccurate when made or became inaccurate after being made;

then a Participant must not enter or continue a Covered Transaction with that entity unless the USDOT has determined in writing that suspension or debarment of that entity are not necessary to protect the interests of the Government.

**5. Mandatory Notice to the USDOT.**

- (a) If the SAM entry for a Participant indicates that the Participant has a Tax Delinquency or a Felony Conviction, the Recipient must notify the USDOT in writing of that entry.
- (b) If a Participant provides an affirmative response to either certification in section 1, the Recipient must notify the USDOT in writing of that affirmative response.
- (c) If the Recipient knows that a Participant's certification under section 1 was inaccurate when made or became inaccurate after being made, the Recipient must notify the USDOT in writing of that inaccuracy.

**6. ~~Fl~~ Do n.** For all Covered Transactions, including all tiers of subcontracts and subawards, the Recipient must:

- (1) require the SAM check in section 2,
- (2) require the certifications in section 3,
- (3) include the prohibition in section 4, and
- (4) require all Participants to notify the Recipient in writing of any information that would require the Recipient to notify the USDOT under section 5.



## APPENDIX C

### DRUG-FREE WORKPLACE REQUIREMENTS

The Recipient certifies that it will, or will continue, to provide a drug-free workplace by:

1. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Recipient's workplace, and specifying the actions that will be taken against employees for violation of such prohibition.
2. Establishing an ongoing drug-free awareness program (see 49 CFR Part 32) to inform employees about:
  - (a) The dangers of drug abuse in the workplace;
  - (b) The Recipient's policy of maintaining a drug-free workplace;
  - (c) Any available drug counseling, rehabilitation, and employee assistance programs; and,
  - (d) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.
3. Making it a requirement that each employee to be engaged in the performance of work supported by the grant award be given a copy of the statement required by paragraph 1.
4. Notifying the employee in the statement required by paragraph 1 that, as a condition of employment supported by the grant award, the employee will:
  - (a) Abide by the terms of the statement, and
  - (b) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction.
5. Notifying the agency in writing, within ten calendar days after receiving notice under paragraph 4(b) from an employee or otherwise receiving actual notice of conviction. Employers of convicted employees must provide notice, including position title, to the Department. Notice must include the order number of the grant award.
6. Taking one of the following actions, within 30 days of receiving notice under paragraph 4(b), with respect to any employee who is so convicted:



- (a) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
  - (b) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State or local health, law enforcement, or other appropriate agency.
7. Making a good faith effort to continue to maintain a drug-free workplace through implementation of ongoing drug-free awareness program.
  8. The Recipient *may*, but is not required to, provide the site for the performance of work done in connection with the specific grant. For the provision of services pursuant to the agreement, workplaces include outstations, maintenance sites, headquarters office locations, training sites and any other worksites where work is performed that is supported by the grant award. If the Recipient does so, please identify the Places of Performance by listing the street address, city, county, state, zip code.



## APPENDIX D

### CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS -- PRIMARY COVERED TRANSACTIONS

#### 2 C.F.R. Parts 180 and 1200

These assurances and certifications are applicable to all Federal grants, subgrants, lower-tier contracts, purchase orders, lease agreements, consultant contracts or any other covered transaction that is estimated to cost \$25,000 or more – as defined in 2 C.F.R. Parts 180 and 1200 (see also 48 CFR 9.401).

By signing and submitting the University Transportation Center (UTC) grant application and by entering into the grant agreement under the UTC Discretionary Grant program, the Recipient is providing the assurances and certifications for First Tier Participants and Lower Tier Participants in its UTC proposal, as set out below.

#### 1. Instructions for Certification – First Tier Participants:

- a. The prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant must submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation must disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the federal agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the federal agency may terminate this transaction for cause of default.
- d. The prospective first tier participant must provide immediate written notice to the federal agency if at any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms “covered transaction,” “civil judgment,” “debarred,” “suspension,” “ineligible,” “participant,” “person,” “principal,” and “voluntarily excluded,” as used in this certification, are defined in 2 C.F.R. Part 180. “First Tier Covered Transactions” refers to any covered transaction between a Recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a Recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).



f. The prospective first tier participant agrees that, should the proposed covered transaction be entered into, it must not knowingly enter into any lower tier covered transaction with a person who is debarred, under suspension, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees that it will include the clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions,” provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, under suspension, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not under suspension, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing must be construed to require the establishment of a system of records in order to render in good faith the duties required by this certification. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is under suspension, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

#### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, under suspension, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding its application/proposal been convicted of or had a civil judgment, including a civil settlement, rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;



(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding its application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant must attach an explanation to this certification.

## **2. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions estimated to cost \$25,000 or more - 2 C.F.R. Parts 180 and 1200)

a. The prospective lower tier participant is providing the certification set out below.

b. The certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue all available remedies, including suspension and/or debarment.

c. The prospective lower tier participant must provide immediate written notice to the agency if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "civil settlement," "debarred," "suspension," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 C.F.R. Part 180. You may contact the agency for assistance in obtaining a copy of the regulations. "First Tier Covered Transactions" refers to any covered transaction between a Recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a Recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees that, should the proposed covered transaction be entered into, it must not knowingly enter into any lower tier covered transaction with a person who is debarred, under suspension, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.



g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, under suspension, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not under suspension, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing must be construed to require establishment of a system of records in order to render in good faith the certification required by this certification. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e above, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is under suspension, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue all available remedies, including suspension and/or debarment.

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -- Lower Tier Participants:**

a. The prospective lower tier participant certifies, that neither it nor its principals is presently debarred, under suspension, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant must submit an explanation concerning their inability to provide the required certification.



**Application for Federal Assistance SF-424**

* 1. Type of Submission:	* 2. Type of Application: * If Revision, select appropriate letter(s):
<input type="radio"/> Preapplication	<input checked="" type="radio"/> New
<input checked="" type="radio"/> Application	<input type="radio"/> Continuation
<input type="radio"/> Changed/Corrected Application	<input type="radio"/> Revision
* 3. Date Received:	4. Applicant Identifier:
08/22/2022	
5a. Federal Entity Identifier:	* 5b. Federal Award Identifier:
<b>State Use Only:</b>	
6. Date Received by State:	7. State Application Identifier:
<b>8. APPLICANT INFORMATION:</b>	
* a. Legal Name: University of Southern California	
* b. Employer/Taxpayer Identification Number (EIN/TIN): 951642394	
* c. UEI: G88KLJR3KYT5	
<b>d. Address:</b>	
* Street1:	Department of Contracts and Grants
Street2:	3720 South Flower Street
* City:	Los Angeles
County:	Los Angeles
* State:	CA: California
Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	90089-0701
<b>e. Organizational Unit:</b>	
Department Name:	Division Name:
Contracts and Grants	Office of Research
<b>f. Name and contact information of person to be contacted on matters involving this application:</b>	
Prefix:	Mr.
Middle Name:	L.
* Last Name:	Misuraca
Suffix:	
Title:	Contract and Grant Officer
Organizational Affiliation:	
University of Southern California	
* Telephone Number:	+1 213 740 8207
Fax Number:	+1 213 740 6070
* Email:	misuraca@usc.edu

**Application for Federal Assistance SF-424****9. Type of Applicant 1: Select Applicant Type:**

O: Private Institution of Higher Education

Type of Applicant 2: Select Applicant Type:

H: Public/State Controlled Institution of Higher Education

Type of Applicant 3: Select Applicant Type:

\* Other (specify):

**\* 10. Name of Federal Agency:**

69A355 Research and Technology

**11. Catalog of Federal Domestic Assistance Number:**

20.701

CFDA Title:

University Transportation Centers Program

**\* 12. Funding Opportunity Number:**

UTCOPENCOMP2022

\* Title:

UTC Program Competition 2022-2026 Grants

**13. Competition Identification Number:**

Title:

**14. Areas Affected by Project (Cities, Counties, States, etc.):**

areas\_served1024518142.pdf

**\* 15. Descriptive Title of Applicant's Project:**

Pacific Southwest Region University Transportation Center

Attach supporting documents as specified in agency instructions.

**Application for Federal Assistance SF-424****16. Congressional Districts Of:**\* a. Applicant \* b. Program/Project Attach an additional list of Program/Project Congressional Districts if needed.  
**17. Proposed Project:**\* a. Start Date: \* b. End Date: **18. Estimated Funding (\$):**\* a. Federal \* b. Applicant \* c. State \* d. Local \* e. Other \* f. Program Income \* g. TOTAL **\* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on .
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

**\* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation and attach.)** Yes       No 

21. \*By signing this application, I certify (1) to the statements contained in the list of certifications\*\* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances\*\* and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

 \*\* I AGREE

\*\* The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**Authorized Representative:**Prefix:  \* First Name: Middle Name: \* Last Name: Suffix: \* Title: \* Telephone Number:  Fax Number: \* Email: \* Signature of Authorized Representative:  \* Date Signed:

AreasAffected

**File Name**

areas\_served1024518142.pdf

**Mime Type**

application/pdf

AdditionalProjectTitle

**File Name**

PSR\_UTC\_full\_v51024518145.pdf

**Mime Type**

application/pdf

PSR\_UTC\_USC\_Partner\_Rate\_Agreements1024518141.pdf

application/pdf

AdditionalCongressionalDistricts

**File Name**

**Mime Type**

DebtExplanation

**File Name**

**Mime Type**

As a regional center, we are committed to serving locations throughout the US Department of Transportation Region 9: Arizona, California, Hawai'i, Nevada, Guam and other Pacific territories. We have structured a program of research, education, workforce development, and technology transfer that will benefit all areas of US DOT Region 9. Additionally, the benefits of the program will reach more broadly, to all areas throughout the U.S.

## 1. Cover Sheet

**Type of University Transportation Center (UTC):** Regional Center, Region 9

**Name of Proposed UTC:** Pacific Southwest Region University Transportation Center

**Statutory Research Priority Area:** Improving Mobility of People and Goods

### US DOT Strategic Plan Strategic Goals

**Primary:** Equity

**Secondary:** Economic Strength and Global Competitiveness, Climate and Sustainability

### Consortium Members

#### Lead/Grantee Institution

University of Southern California<sup>7</sup>  
 Los Angeles, California 90089

#### Member Institutions

California State University Long Beach<sup>1,2</sup>  
 Long Beach California, 90840

Northern Arizona University<sup>2</sup>  
 Flagstaff, Arizona 86011

Pima Community College<sup>1,2,5</sup>  
 Tucson, Arizona 85709

University of California, Berkeley<sup>7</sup>  
 Berkeley, California 94720

University of California, Davis<sup>6</sup>  
 Davis, California 95616

University of California, Irvine<sup>2,3</sup>  
 Irvine, California 92697

University of California, Los Angeles<sup>7</sup>  
 Los Angeles, California 90095

University of Hawai'i at Mānoa<sup>3, 4</sup>  
 Honolulu, Hawai'i 96822

University of Nevada, Las Vegas<sup>1,3</sup>  
 Las Vegas, Nevada 89154

<sup>1</sup> Minority-Serving Institution (per Section 365 of the Higher Education Act of 1965)

<sup>2</sup> Hispanic-Serving Institution

<sup>3</sup> Asian American Native American Pacific Islander-Serving Institution

<sup>4</sup> Native Hawaiian-Serving Institution

<sup>5</sup> American Indian Alaska Native-Serving Institution

<sup>6</sup> Hispanic-Serving Institution eligible

<sup>7</sup> Asian American Native American Pacific Islander-Serving Institution eligible

## 2. Research Abstract

The Pacific Southwest Region (PSR) University Transportation Center (UTC) will serve Region 9 with a comprehensive, integrated program of research, education and technology transfer built upon the priority needs of the region: 1) closing access gaps, 2) increasing the sustainability and resilience of the goods movement system, and 3) expanding workforce opportunities.

This is a moment of great change. Technology is enabling new mobility opportunities, but many people are being left behind. Our vulnerability to external shocks (natural and human-made) is increasing. We must build a transportation system that promotes equitable access, while sustainably supporting the economy, with a workforce that is trained for and connected to new jobs.

Region 9 is the right place for transformative research that will change practice. Region 9 includes Arizona, California, Hawai'i, Nevada, and the Pacific Territories. The region has enormous variation geographically, economically, and socially. It has the second largest metropolitan area in the US (Los Angeles), as well as vast tracts of rural lands. Income disparities are extreme, with concentrations of poverty in central cities as well as remote tribal communities. It includes the center for US maritime trade (the Ports of Los Angeles and Long Beach) and the inaccessible Pacific islands and territories. We identified five characteristics of Region 9 that frame our research program and inform our research themes.

1. *Uneven transportation access* across our enormously diverse region, particularly among transportation-disadvantaged travelers and communities
2. Our region's *central role in global supply chains*, and the growing risk of disruption to the supply chains
3. *Transportation's central role in sustainability*: reducing criteria emissions, meeting ambitious climate goals, and our region's particular vulnerabilities to climate risks such as wildfires, sea level rise, drought, and extreme weather
4. Our region's role as the *global center of the information and communications technology (ICT) revolution*, which is transforming transportation
5. The *changing nature of transportation work*, potentially placing hundreds of thousands of jobs at risk but creating new jobs as well

These five characteristics illuminate that Region 9's transportation needs span the passenger and goods movement systems. Closing gaps in access while reducing inequities is a fundamental need across the region. Hence, we chose the research priority area **Improving Mobility of People and Goods** and the US Department of Transportation (DOT) strategic goal of **Equity** for our research plan. The secondary strategic goals of **Economic Strength and Global Competitiveness** and **Climate and Sustainability** are central to our research program as well.

The PSR research program is organized around two themes and a topic that cuts across both themes.

Research Theme 1: *Accessibility and Mobility for All*

Research Theme 2: *Sustainable and Resilient Supply Chains*

Cross-Cutting Topic: *Access to Opportunity Through Strategic Workforce Development*

In Theme 1, we will generate knowledge that will help close access gaps through research that 1) examines how different modes and technologies can increase access, both in everyday and lifeline settings, 2) promotes a well-resourced, efficient passenger transport system, and 3) advances the goal of equitable access to low-carbon transport. In Theme 2, we will create knowledge that will increase the sustainability and resiliency of the goods movement system through research aimed at 1) reducing the system's environmental impacts, especially in environmental justice communities, 2) increasing the efficiency and resiliency of the system, and 3) advancing and accelerating paths to goods movement system decarbonization. Our cross-cutting research topic on workforce development will build knowledge that enhances transportation's role in generating economic opportunity through research that will quantify areas of prospective job loss and job gain while evaluating workforce training programs.

Throughout our work, we will link our research objectives to our education, workforce development, and technology transfer programs. For example, our education and workforce programs train frontline workers and agency staff to adapt to technology change. We will deepen our commitment to diversifying the transportation workforce continuing an education program that ranges from K-12 through post-graduate education, while adding new programs that will broaden the reach of our diversity efforts. We include research projects that partner with the community from day one, to accelerate technology transfer while ensuring that our research is linked to practice.

PSR's partners span the full range of higher education and are located in every state in Region 9. They are: 1) California State University, Long Beach (CSULB), 2) Pima Community College (Pima), 3) Northern Arizona University (NAU), the University of California's campuses and Institutes of Transportation Studies at 4) Berkeley (UCB), 5) Davis (UCD), 6) Irvine (UCI), and 7) Los Angeles (UCLA), the 8) University of Hawai'i at Manoa (UH), the 9) University of Nevada, Las Vegas (UNLV), and the lead partner, 10) the University of Southern California (USC). UCB and UNLV are new to the consortium. Together, the partner universities enroll over 350,000 students and graduate over 6,000 students annually in transportation-related degree programs.

USC is a demonstrated leader in managing large consortia, and the partners have a long and successful record of collaboration. PSR is a partnership of major transportation research centers, bringing the full resources of those centers and providing a strong institutional context that goes beyond individual faculty members. Among our core faculty, 20% have won national or international honors for scholarship.

We are poised to leverage the deepest well of transportation research, education, and workforce expertise in the region (and arguably in the nation) to address the most pressing problems in Region 9, while, at the same time, moving forward scholarship and practice nationally in support of US DOT strategic goals.

### 3. Written Response

## PART 1: RESPONSE TO EVALUATION CRITERIA

### Introduction

Regional University Transportation Centers (UTCs) have specific functions. Per the Notice of Funding Opportunity (NOFO), regional centers “must serve as a focal point ... to help coordinate UTC transportation research and education programs with *regional needs and initiatives*” (NOFO pp 11-12; our italics). Unlike national or Tier 1 centers, the regional center serves the region, yet it is vital that they also advance the national interest and US Department of Transportation (DOT) strategic goals. We fulfill these functions by developing our research and education programs through a bottom-up needs assessment and an expanded Pacific Southwest Region (PSR) consortium that links with every Region 9 state DOT, regional and local agencies, and community groups.

The PSR UTC was established in 2016 as a consortium of eight universities and colleges: University of Southern California (USC), California State University, Long Beach (CSULB), Northern Arizona University (NAU), Pima Community College (Pima), the University of California’s campuses at Davis (UCD), Irvine (UCI), and Los Angeles (UCLA), and University of Hawai’i at Manoa (UH). We will add University of California, Berkeley (UCB) and University of Nevada, Las Vegas (UNLV) to span every state in Region 9 and include every University of California Institute of Transportation Studies. CSULB, Pima, and UNLV are minority-serving institutions per Section 365 of the Higher Education Act of 1965. In addition, every partner is at least one of a Hispanic-Serving Institution, an Asian American Native American Pacific Islander-Serving Institution, a Native Hawaiian-Serving Institution, an American Indian Alaska Native-Serving Institution, or eligible for such status.

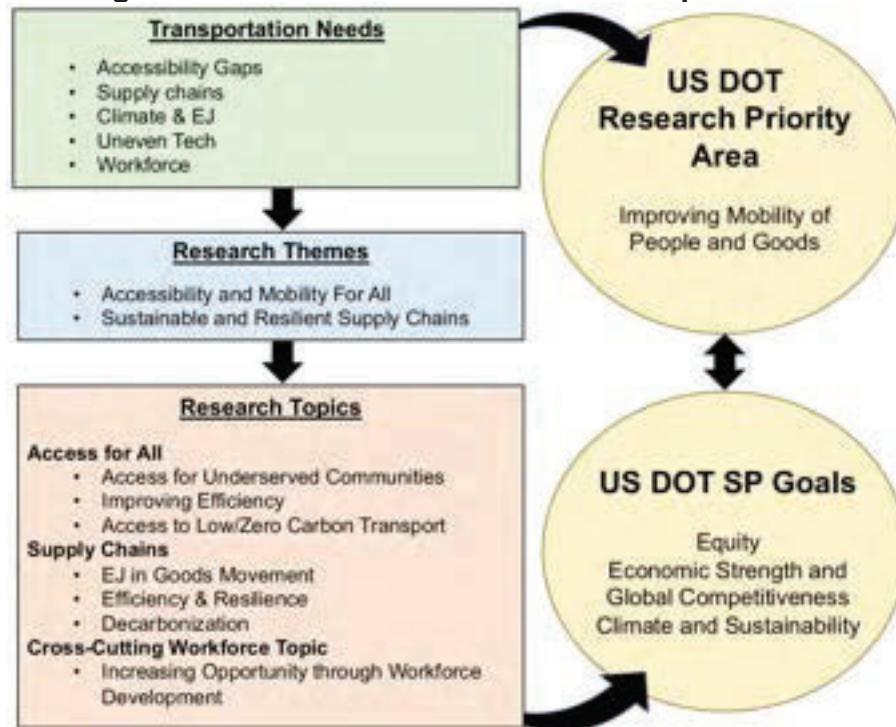
PSR’s Executive Committee (EC) is comprised of the directors of the major transportation research programs at our host universities. Hence, our capabilities are not just a collection of exceptional faculty, but the institutional strength of some of the most highly regarded transportation research centers, logistics education and training centers, and one of the premier disaster preparedness training centers in the US.

### 1. Criterion One: Research Activities and Capability

**1.1 Proposed Research Activities:** We built our research program by first studying Region 9 and its transportation needs, leveraging insights from our six years as the current regional UTC (see **Figure 1** for our process). Our assessment illuminated five needs, spanning the passenger and goods movement systems. We chose the DOT priority research area of **Improving Mobility of People and Goods** to best address the range of transportation needs in the region. Within that DOT priority research area, we crafted two research themes, **Accessibility and Mobility for All** and **Sustainable and Resilient Supply Chains**, and, within those themes, seven research topics (including a workforce development topic that cuts across both themes). Given the prominence of disparate access and impacts across the region (described below), we chose **Equity** as

our primary DOT strategic plan goal, with **Economic Strength and Global Competitiveness** and **Climate and Sustainability** as secondary goals.

**Figure 1: From Region 9 Needs to Research Themes/Topics and DOT Goals**

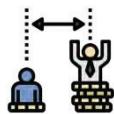


**1.1.1 Region 9 Transportation Needs Assessment:** Region 9 includes four diverse states, as well as the Pacific Island territories. Region 9 generates 17.6% of the nation's gross domestic product (GDP).<sup>1</sup> It is home to 11 metropolitan statistical areas with populations in excess of one million people, which is 20% of the nation's total, and includes the nation's second largest metropolitan area. The region has three of the top 15 US passenger airports and four of the top 15 US cargo airports, the largest port complex in the Western Hemisphere, and the largest high-technology region in the world.<sup>2</sup> At the same time, the region is home to vast, sparsely populated rural areas, remote Pacific islands, concentrations of both urban and rural poverty, and large and growing levels of income inequality. Census data show clusters of high poverty rates (>20% of census tract population below the poverty line) in California's Central Valley, rural areas of Nevada and Arizona including tribal communities, and rural areas of Hawai'i. Although an average of 7% percent of households in this region lack access to a vehicle, which is similar to the national average, there are pockets of extreme inaccessibility; 773 of the region's 12,077 census tracts have rates of zero-vehicle households that exceed 20%. The pockets of high zero-vehicle households in large part mirror the locations of high poverty, in both urban and rural regions.

<sup>1</sup> U.S. Bureau of Economic Analysis, GDP by State, 2021. <https://www.bea.gov/data/gdp/gdp-state>.

<sup>2</sup> United States Census Bureau. (2022, February 24). Metropolitan and Micropolitan Statistical Areas Population Totals and Components of Change: 2020-2021; Federal Aviation Administration, Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports, 2021; The Port of Los Angeles, 2021 Port of Los Angeles Container Statistics, 2021; Port of Long Beach, Port Statistics, TEUS Archive: 1987 to Present by Month; 2022 Silicon Valley Index, Joint Venture Silicon Valley and Institute for Regional Studies, <https://jointventure.org/images/stories/pdf/index2022.pdf>.

Building on our expertise, we identified the region's transportation needs. Five characteristics stood out and informed our research program.



*1. Gaps in Transportation Access:* Transportation access is a lifeline - to jobs, the economy, and society. Households in the region without access to a car have job access prospects that are an order of magnitude worse than households with a car.<sup>3</sup> Region 9 is home to some of the most ambitious multi-modal transportation projects in the nation, yet those projects cannot reach all the residents who are in need. Native Americans and Pacific Islanders, who often live in some of the most isolated parts of the region, experience some of the most severe access problems. Even within urban areas, many locations are cut off from accessibility to essential goods and services, sometimes a result of transportation investments that divided neighborhoods.<sup>4</sup> High housing prices add to accessibility problems. California and Hawai'i have the highest median home prices in the US.<sup>5</sup> A lack of affordable housing in the region imposes severe constraints on location choice for low-income households, leading to long commutes and limited job access.<sup>6</sup>



*2. Supply Chain Disruption and Economic and Environmental Risks:* The San Pedro Bay ports (of Los Angeles and Long Beach) process 40% of the nation's container imports.<sup>7</sup> The pandemic illustrated the level of connectivity and interdependence of the US economy and demonstrated the weaknesses of just-in-time practices and far-flung supply chains, while magnifying existing inefficiencies. Capacity problems reverberated along supply chains, causing shortages in consumer products and manufacturing inputs. Even before the pandemic, the environmental impact of the system was evident. Particulate emissions around the ports and along truck corridors are associated with thousands of premature deaths each year.<sup>8</sup> Exposure is disproportionately high among low-income communities of color, making it one of the nation's most serious environmental justice (EJ) problems.<sup>9</sup> While the San Pedro Bay ports have been leaders in greening port, shipping, and landside goods movement, much more remains to be done.



*3. Climate Vulnerabilities and Environmental Justice:* The myriad transportation systems of Region 9 are at increasing risk from an array of natural hazards including sea level rise, earthquakes, droughts, wildfires, and volcanoes. Many of those risks will increase with global climate change, and many parts of the region's transport

<sup>3</sup> M. Boarnet, G. Giuliano, Y. Hou, and E-J Shin (2017). First/Last Mile Transit Access as an Equity Planning Issue. *Transportation Research A, Policy and Practice*, vol. 103, issue C, 296-310.

<sup>4</sup> Taylor, Brian and Julene Paul. (2021). Who lives in transit-friendly neighborhoods? An analysis of California neighborhoods over time. *Transportation Research Interdisciplinary Perspectives*, Volume 10.

<sup>5</sup> U.S. Census Bureau and U.S. Department of Housing and Urban Development, Median Sales Price of Houses Sold for the United States [MSPUS], retrieved from FRED, Federal Reserve Bank of St. Louis.

<sup>6</sup> Boarnet, M.G., Rodynasky, S, Wang, B, Comandon, A. (2021). Displacement and Commuting in the San Francisco Bay Area and Beyond, USC METRANS PSR project 20-03 final report, [https://www.metrans.org/psr\\_utc\\_research](https://www.metrans.org/psr_utc_research).

<sup>7</sup> The White House, United States. (2022). A Record Year for America's Ports and a Look to the Year Ahead. Jan. 20.

<sup>8</sup> Tianyang Wang et al. Mortality burdens in California due to air pollution attributable to local and nonlocal emissions. *Environment International*, Volume 133, Part B, 2019.

<sup>9</sup> Douglas Houston, Wei Li, and Jun Wu, 2014, Disparities in Exposure to Automobile and Truck Traffic and Vehicle Emissions Near the Los Angeles–Long Beach Port Complex, *American Journal of Public Health* 104, pp. 156-164.

infrastructure and large segments of the population are increasingly vulnerable. Pollution and poor air quality are also problems, and despite significant progress, environmental impacts remain substantial and fall disproportionately on the most vulnerable.<sup>10</sup> Transportation's contribution to climate change is arguably the most pressing concern: highway transportation currently accounts for 60% of petroleum consumption in the US and 22% of greenhouse gas (GHG) emissions.<sup>11</sup>



*4. Uneven Technology Innovation and System Transformation:* As the undisputed global leader in information and communications technologies (ICT), Region 9 is a hotbed of transportation innovation. Uber and Lyft were born in our region, and innovations in micro-transit, car- and scooter-sharing have often occurred here first, as well. Nevada was the first state to pass an autonomous vehicle law (AB 511, 2011), and Arizona is hosting demonstrations of commercial driverless taxi services and automated long-haul trucks. The nation's first high speed rail line is under construction in California and major urban rail projects are under construction in several metro areas. Region 9 is also leading the shift to alternative fuel vehicles. California's regulations help explain why the state accounts for almost half of all zero- and near zero-emission passenger vehicles sold in the US. However, this transformation has been uneven. Many rural parts of the region do not have the density or income levels to support emerging web-based transportation services, and the most remote areas have limited access to high-speed telecommunications lines. Technologies that contribute to cleaner air, such as electric vehicles, are primarily being adopted in wealthier urban communities.<sup>12</sup> Access to charging infrastructure is also income-dependent; neighborhoods where average incomes are below \$50,000 are often "charging deserts."<sup>13</sup>



*5. A Changing Transportation Workforce:* In Region 9, about 4% of all jobs are in the transportation and warehousing sectors (NAICS 48-49). Automation and shifts to cleaner energy sources, along with the continued emergence of new modes of transportation, will change the nature of jobs in this sector and throughout transportation. Many of the new and emerging modes and services (e.g., Uber, instant delivery) are based on the "gig worker" who has no formal ties to an employer and typically earns low wages. Some traditional occupations such as truck driver or bus mechanic will decline or be reconfigured, requiring new skills. New industries are emerging (e.g., electric vehicle production) that will provide new jobs. This rapidly changing labor landscape requires new methods for reskilling and upskilling, and new education models.

**1.1.2 Research Program:** We address Region 9's transportation needs with a research program that has four parts: 1) faculty-initiated research, 2) community-partnered research projects, 3) student-led, faculty-supervised research, and 4) a regional pool fund

<sup>10</sup> Miranda, M.L.; Edwards, S.E.; Keating, M.H.; Paul, C.J. Making the Environmental Justice Grade: The Relative Burden of Air Pollution Exposure in the United States. *Int. J. Environ. Res. Public Health* 2011, 8, 1755-1771.

<sup>11</sup> U.S. EPA (2022). Fast Fact on Transportation Greenhouse Gas Emissions, 2020, and Khartukov, E. M. (2019, October 22). Oil on the Roads: Road Transportation and Use in the USA and Worldwide. Oilman Magazine. Retrieved from <https://oilmanmagazine.com/oil-on-the-roads-road-transportation-and-use-in-the-usa-and-worldwide>

<sup>12</sup> Hardman, Scott, et al. (2021). A perspective on equity in the transition to electric vehicles. Aug 30. MIT Science Policy Review. Retrieved from <https://sciencepolicyreview.org/2021/08/equity-transition-electric-vehicles/>

<sup>13</sup> Gross, Britta. (2021). Op-Ed: What it will take to get electric cars into low-income communities?. Los Angeles Times, <https://www.latimes.com/opinion/story/2021-07-08/electric-vehicle-goals-charging-deserts>



to support research at any university within Region 9, to ensure a truly regional program. Faculty-initiated research supports innovation and builds new knowledge. The new community-partnered research program, described below, will be our vehicle to proactively engage communities and to start technology transfer from the earliest stages of research. The student-led, faculty-supervised graduate research fellowship program will help recruit outstanding, diverse students to our degree programs.

**1.1.3 Community-Partnered Research Projects:** Transforming the transportation system requires implementing the results, while ensuring that the research meets community needs. We will develop community-partnered research projects that will 1) have a community partner from the start, and 2) have a project advisory board drawn from agencies/entities that can implement the results. To make immediate progress on this new program, we will launch two community-partnered projects, described in text boxes below, upon receipt of award. We have secured agreement from the community partners listed in those two community-partnered projects. Community partners will be compensated through match funds, honoraria, or other funding. The PSR EC will be an internal oversight body, receiving annual updates on community-partnered project progress and advising the PSR Director on progress of individual projects and the overall research program.

Upon approval of UTC funding, the teams for each of the two community-partnered projects will develop a proposal that conforms to the standards of PSR research proposals. Those proposals will be sent to outside reviewers and then to the PSR EC for approval or, as needed, revisions. After the first year of our research program, the annual call for research proposals will solicit new community-partnered projects, in addition to soliciting traditional faculty-initiated projects. The key difference between community-partnered and faculty-initiated research is that community-partnered projects will involve the community from the earliest stages of problem conceptualization. Faculty-initiated projects often focus on creating new and unanticipated knowledge, and thus may not be able to pursue early formal partnership with communities. We are dedicated to advancing a co-creation model, in which the community not only receives research results but is involved in the research; the community-partnered program will be our vehicle to implement a co-creation approach.

**1.1.4 Research Themes:** Our two research themes, cross-cutting topic, and research topics relate to the US DOT strategic goals of **Equity, Economic Strength and Global Competitiveness, and Climate and Sustainability**. The NOFO (p. 21) specifies several candidate topic areas. Our research program is built to both address Region 9 needs and advance all the candidate topic areas in the “Improving Mobility of People and Goods” Infrastructure Investment and Jobs Act (IIJA) research priority area.<sup>14</sup> **Table 1** maps our research program onto the DOT’s strategic goals; each icon represents a need of Region 9, as described above.

---

<sup>14</sup> While addressing all candidate topic areas under the IIJA priority research area of “Improving Mobility of People and Goods,” our research program is particularly relevant to these candidate topic areas (NOFO, p. 21): Freight, Transportation Equity, Mobility Innovation, and Network Accessibility. We also address several candidate topic areas in the Preserving the Environment research priority area (NOFO, p. 22), including Electrification, Environmental Analysis and Mitigation, Environmental Justice, and Mode Shift.

**Table 1: PSR Research Themes and Topics, and Relationship to US DOT Strategic Goals and Region 9 Needs**

Equity (primary)	US DOT Strategic Goals	
	Economic Strength and Global Competitiveness	Climate and Sustainability
<b>PSR Research Theme 1: Accessibility and Mobility for All</b>		
Research Topic 1.1: Accessibility for Underserved and Isolated Communities 	Research Topic 1.2: Improving the Efficiency of the Mobility System 	Research Topic 1.3: Broadening Access to Low/Zero Carbon Transport 
<b>PSR Research Theme 2: Sustainable and Resilient Supply Chains</b>		
Research Topic 2.1: Addressing Environmental Justice Problems in the Goods Movement System 	Research Topic 2.2: Goods Movement System Efficiencies and Resilience 	Research Topic 2.3: Decarbonizing the Goods Movement System 
<b>PSR Cross-Cutting Topic – applies to PSR Research Themes 1 &amp; 2 and to all 3 US DOT Strategic Goals</b>		
Research Topic CC: Access to Opportunity Through Strategic Workforce Development 		

### **Research Theme 1: Accessibility and Mobility for All**

Too often, the transportation system creates and perpetuates inequities. At the same time, advances in technology and a renewed focus on multi-modal transportation bring a promise of transformative change that can reduce inequities and link previously isolated communities to opportunities. Our objective is to generate knowledge that will close access gaps and reduce inequities. We will do this through research that 1) examines how new and existing modes and technologies can provide access to those who have been underserved, 2) promotes a well-resourced, efficient passenger transport system (because systems that are poorly resourced or inefficient often leave behind those most in need), and 3) advances the goal of equitable access to low-carbon transport.

***Topic 1.1: Accessibility for Underserved and Isolated Communities:*** We will create knowledge that closes access gaps across underserved locations and populations throughout Region 9. We will research policies, practices, technologies, and infrastructure that address the following questions: How can platform or web-based systems, including mobility as a service (MAAS), increase access, and how can those systems become accessible for persons who do not have smartphones, fast internet, English speaking skills, or who have impaired sight or hearing? How can online services supplement access in remote locations and among underserved populations? What is the role of public transport in multi-modal access? What car sharing models can work in a remote environment? How can safety be improved on all modes, particularly in underserved places? How can access be preserved and strengthened in locations where climate change poses increased risks to the infrastructure and systems that provide everyday and lifeline connections?

**Community-Partnered Research Project: Grass roots shared mobility** (UCD, UNLV, USC): We will build upon established research partnerships with **Self-Help Enterprises**, the largest affordable housing developer in California's San Joaquin Valley, the **SELA Collaborative** in Southeast Los Angeles, and **Miocar**, a non-profit shared mobility provider in the San Joaquin Valley. We will 1) conduct a needs

assessment to understand the potential for car-sharing models in rural and underserved urban locations, 2) identify research gaps related to user needs and sharing implementation models, and 3) craft research that addresses those gaps. PSR has ties to many technology partners, including Halo.car (provider of driverless short-term rental vehicles in Las Vegas), that can provide insight through the project advisory board.

***Topic 1.2: Improving the Efficiency of the Mobility System:*** Our objective is to generate knowledge that will improve the efficiency of a rapidly changing transportation system, because improving accessibility and mobility requires using the system as efficiently as possible. We will create knowledge that promotes system efficiency both through technology and through better use of existing resources. We will examine short-term technology solutions like smart parking, car sharing or delivery consolidations, as well as long-term solutions such as the development of models and algorithms for managing shared connected and autonomous vehicles, impacts on travel behavior, impacts on traffic flow and management in mixed fleets, and truck platoons. We will also study resource questions including the accelerated decline in transit ridership following the pandemic, how transit ridership can be recovered, and financial models that support system efficiency and equity.

***Topic 1.3: Broadening Access to Low/Zero Carbon Transport:*** Electric vehicles (EVs) have most successfully been adopted by higher income households residing in single family homes where home-based charging is easily accomplished. Despite subsidies, EVs are not affordable to lower income households. This topic explores policies and strategies for broadening the market for clean vehicles. Experiments with EV car sharing are taking place in both rural and urban areas, and we will research the following questions related to this work: Are these effective models? How might local charging infrastructure be prioritized and funded? Should EV subsidies be based on income? What is the role of used EVs? What are the most equitable and effective ways to expand EV use and low/zero-carbon transport into the lower income market? How effective are other low-carbon and non-motorized modes and how can use of those modes be increased?

**Community-Partnered Research Project: Better data for assessing transportation-environment links in tribal nations** (CSULB, NAU, Pima, USC):

Tribal communities often do not have the data or resources to track the impacts of transportation projects and systems. This research project will partner with the **National Indian Justice Center (NIJC)**, a leader in helping tribes build transportation planning capacity. We will 1) convene a workshop of Region 9 tribal communities and PSR researchers to articulate tribal needs, 2) craft a research agenda that develops metrics and tools for measuring the most pressing tribal transportation and environment data needs, and 3) leverage the breadth of PSR faculty, which ranges from qualitative research to data analytics, to create tools that move tribal transportation practice in the region forward. Findings will be shared as part of an upcoming national tribal research summit presented by the National Academies' Transportation Research Board.



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

### ***Research Theme 2: Sustainable and Resilient Supply Chains***

Supply chains and the freight system that supports them are essential to the economy and society and are lifelines during emergencies. Goods movement is also a major source of environmental harm. Our objective is to create knowledge that will promote a more resilient, sustainable, and equitable goods movement system. We will do this by 1) researching methods to reduce the environmental impact of the system, especially in EJ communities, 2) developing knowledge, methods, tools, technologies, policies, and practices to increase the efficiency and resiliency of the system, and 3) studying paths to goods movement system decarbonization.

***Topic 2.1: Addressing Environmental Justice Problems in the Goods Movement System:*** Freight demand is growing for many reasons, among them rising incomes, increasing online consumption, and shorter delivery times. These changes are restructuring distribution chains, increasing demand for warehousing, and increasing truck travel. In addition to the longstanding EJ problems associated with ports, airports, and other large intermodal facilities, there are also EJ problems associated with large warehouse clusters and the corridors connecting them to consumer markets. The long-term solution to air quality problems is zero emission vehicles, but zero-emission vehicles (ZEVs) do not solve safety or neighborhood impact problems. We will examine policies and strategies to reduce emissions, protect residential areas, reduce crash risk, and increase compatibility of warehouse facilities with the local environment.

***Topic 2.2: Goods Movement System Efficiencies and Resilience:*** The US goods movement system is efficient, but not nearly as efficient as it could be. A fundamental problem is that the supply chain is an interconnected system, but each part operates independently. When shocks occur in interdependent and high-velocity supply chains, disruptions can be major, as demonstrated in the past two years. We will develop models and methods for coordination of freight demand across modes and firms, generation and management of freight data, better management of pickups and deliveries, and increasing supply chain flexibility and resilience.

***Topic 2.3: Decarbonizing the Goods Movement System:*** Despite remarkable achievements, no zero-emission fuel technology fulfills the performance requirements of heavy-duty vehicles at a reasonable price. This topic will research alternative fuels, examining the advantages and disadvantages of battery electric and hydrogen fuel cell fleets, as well as the costs and benefits of hybrid power trains as a bridge technology. Life cycle models will be developed to compare upstream and downstream costs. We will examine alternative fuel vehicles from an operational perspective to estimate the full impacts on firms. We will study ways to make low- and zero-emission trucks more accessible for small firms and independent operators, which often lack the financial resources to make large investments. The research will help to develop national guidelines for heavy-duty vehicle decarbonization. Additionally, we will study methods for low- and zero-carbon last-mile goods delivery, leveraging our experience evaluating existing pilots of such programs in Region 9.

### **Cross Cutting Topic (Topic CC): Access to Opportunity Through Strategic Workforce Development**

This component of our research program brings together research and workforce development by studying the changing transportation workforce context and linking to our strong workforce development program (described below). Workforce development applies equally to both of our research themes. In this cross-cutting topic, we will research the changing nature of work in transportation, focusing on impacts of automation, the shift to new fuels, and growth of new modes. We will examine opportunities associated with green jobs, with emphasis on opportunities in lower income, EJ communities. We will also evaluate the effectiveness of workforce training programs and assessments of the workforce impacts of transportation policies, investments, and technologies.

**1.1.5 Advancing US DOT Strategic Plan Goals:** We will advance the US DOT Strategic Plan Goals in the following ways: 1) Our community-partnered research projects will innovate a co-creation model that ensures that community needs, and hence the DOT goal of **Equity**, are at the center of the research. 2) Our deep expertise on freight and goods movement, coupled with our longstanding ties to the Ports of Los Angeles and Long Beach and the freight and logistics industries, will allow us to contribute to the DOT goal of **Economic Strength and Global Competitiveness**. 3) We include research topics (Topics 1.3 and 2.3) that will advance efforts to decarbonize both the passenger and goods movement systems, furthering the DOT's **Climate and Sustainability** goal.

**1.1.6 Relationship to US DOT Strategic Plan Key Performance Indicators:** **Tables 2 and 3** show how our research topics will advance US DOT Strategic Plan Key Performance Indicators (KPIs) and US DOT Research, Development, and Technology (RD&T) strategic plan research priorities and grand challenges. Each research topic is mapped to US DOT goals and specific KPIs (middle column), and DOT RD&T research priorities and grand challenges (right-most column). For example, we will improve quantitative Statewide Transportation Improvement Program / Transportation Improvement Program (S/TIP) screening through our work in Topic 1.1.

**Table 2: Research Theme 1 Relationship to US DOT KPIs, Research Priorities, & Grand Challenges**

PSR Research Topic	DOTSP goals • DOTSP KPIs	DOT RD&T research priorities & DOT RD&T grand challenge
1.1 Accessibility for Underserved and Isolated Communities	Equity • Quantitative screen in S/TIP for all DOTs & large MPOs • Reduce national transportation cost burden	<ul style="list-style-type: none"> <li>• Equity &amp; Accessibility Assessment</li> <li>• Mobility Innovation</li> <li>• Wealth Creation</li> </ul> <p><b>Grand Challenge: Equitable Mobility for All</b></p>
1.2 Improving the Efficiency of the Mobility System	Economic Strength and Global Competitiveness • Increase efficiency & reliability of transport system • Increase bus service frequency	<ul style="list-style-type: none"> <li>• System Performance</li> <li>• Data-Driven Insight *</li> <li>• New and Novel Technologies *</li> </ul>

PSR Research Topic	DOTSP goals • DOTSP KPIs	DOT RD&T research priorities & <i>DOT RD&amp;T grand challenge</i>
1.3 Broadening Access to Low/Zero Carbon Transport	Climate and Sustainability • Reduce transport emissions in support of net-zero • At least 40% of investment benefits to disadvantaged communities • National network of EV chargers	• Decarbonization <b><i>Grand Challenge: Net-zero Emissions</i></b>

Legend: DOTSP = DOT Strategic Plan; DOT RD&T = DOT Research, Development, and Technology Strategic Plan; S/TIP = Statewide Transportation Improvement Program / Transportation Improvement Program; MPOs = Metropolitan Planning Organizations; \* = Research Priorities from the "Transformation" Strategic Goal that will also be addressed

**Table 3: Research Theme 2 & Topic CC Relationships to KPIs, Research Priorities, & Grand Challenges**

PSR Research Topic	DOTSP goals • DOTSP KPIs	DOT RD&T research priorities <i>DOT RD&amp;T grand challenge</i>
2.1 Addressing Environmental Justice Problems in the Goods Movement System	Equity • Quantitative screen in S/TIP for all DOTs & large MPOs Climate and Sustainability • At least 40% of investment benefits to disadvantaged communities	• Equity & Accessibility Assessment • Decarbonization
2.2 Goods Movement System Efficiencies and Resilience	Economic Strength and Global Competitiveness • Increase efficiency & reliability of transport system • Increase port capacity • Increase employment in the transportation & warehouse sectors	• Resilient Supply Chains • Data-Driven Insight * • New and Novel Technologies * • Workforce Development <b><i>Grand Challenge: Resilient Supply Chains</i></b>
2.3 Decarbonizing the Goods Movement System	Climate and Sustainability • Reduce transport emissions in support of net-zero • At least 40% of investment benefits to disadvantaged communities	• Decarbonization <b><i>Grand Challenge: Net-zero Emissions</i></b>
CC: Access to Opportunity Through Strategic Workforce Development	Economic Strength and Global Competitiveness • Increase employment in the transportation & warehouse sectors	• Workforce Development

Note: The workforce topic also advances the DOTSP Equity and Climate & Sustainability goals

Legend: DOTSP = DOT Strategic Plan; DOT RD&T = DOT Research, Development, and Technology Strategic Plan; S/TIP = Statewide Transportation Improvement Program / Transportation Improvement Program ; MPOs = Metropolitan Planning Organizations; \* = Research Priorities from the "Transformation" Strategic Goal that will also be addressed

**1.1.7 Role of Minority-Serving Institutions in Research Plan:** The minority-serving institutions (CSULB, Pima, UNLV) will be fully integrated into the research plan, and each have a role in the community-partnered research projects. Pima has strong ties to tribal communities and will be involved in tribal research (e.g., Topic 1.1.) UNLV has experience and ties to transportation technology innovations such as Halo.car (Topics 1.1 and 1.2.) CSULB and Pima have expertise in workforce development (Topic CC). Dr. Tyler Reeb (CSULB) edited "Empowering the New Mobility Workforce" (Elsevier, 2019), which



included research contributions from Pima and CSULB. More broadly, Pima and CSULB have a six-year history of collaborating with PSR, and before that, through the Southwest Transportation Workforce Center. UNLV has deep ties to the fast-growing Las Vegas region, with over 150 completed research projects and expertise in safety, data analytics, automated vehicle analysis, video-based vehicle detection systems, population and economic forecasting, policy analysis, and transport and public health.

**1.1.8 A Multimodal and Multidisciplinary Research Plan:** PSR research will span from technologies that can augment or replace passenger travel (e.g., telehealth), to first-last mile transit solutions that include active travel and new mobility, to integrated goods movement that is multimodal. The research will be multidisciplinary, bringing together PSR's team of engineers, policy analysts, social scientists, and urban planners. The cross-university collaborations envisioned for the community-partnered projects are one example of broader collaboration. PSR will continue to host an annual congress that gathers our faculty, students, and Advisory Council, to compare research and to ensure a multidisciplinary research program.

**1.1.9 Research Program Peer Review:** The faculty-initiated research, regional pool fund, and community-partnered projects will be conducted as an open solicitation (RFP) each year. Each research proposal will undergo external peer review. Match fund sponsors will have the option of including specific projects in the RFP. Sponsor-generated projects will be subject to the same peer review and selection process. The student fellowship program will be managed at the partner level, to accommodate each university's student funding policies. Criteria for applications, reviews, and selection for the graduate research fellowship will be established by the Associate Director at each partner university. In all cases, this funding will result in a research product.

**1.1.10 Research Program Performance Metrics:** Each PSR consortium partner will track data on these metrics and will report to the USC METRANS Associate Director for administration semi-annually. USC METRANS, as the PSR lead, will collate the information and report to DOT.

**Table 4: Research Program Performance Metrics**

1. Proposal Selection Process: a. Number of proposals submitted; b. Number of proposals selected; c. Amount and source of match funding
2. Research Outputs: a. Number of research reports issued (from UTC funding); b. Number of peer-reviewed publications; c. Number of conference presentations
3. Graduate Student Research Fellowship Program: a. Number of graduate students funded; b) Number of reports issued
4. Research outcomes: a. Scholarly awards; b. Implementation of research results (e.g., demonstrations, practices, policy actions)

## **1.2 Capability and Experience**

**1.2.1 Research Resources:** The research capabilities and experience of the PSR team are extraordinary. Each university has a significant transportation research program, with laboratories, research facilities and institutional support, and each has an existing

research center that will serve as the administrative home for the PSR. **Table 5** describes the research centers that will house PSR.

**Table 5: Research Centers that House PSR**

Center	Description
<b>USC METRANS Transportation Consortium</b>	<ul style="list-style-type: none"> <li>• partnership of USC and CSULB • since 1998 the only UTC in Southern California • averages over \$8 million in funded research per year • internationally recognized for research in urban freight • dozens of faculty members across 16 USC departments in 7 USC schools and colleges</li> </ul>
<b>CSULB Center for International Trade and Transportation (CITT)</b>	<ul style="list-style-type: none"> <li>• delivers education, research, and outreach in the area of goods movement • home of the Southwest Transportation Workforce Center (SWTWC) and the California Local Technical Assistance Program (LTAP)</li> </ul>
<b>NAU AZTrans</b>	<ul style="list-style-type: none"> <li>• implementable research solutions on transportation safety, efficiency, and sustainability • state-of-the-art traffic signal and safety lab</li> </ul>
<b>Pima Strategy, Analytics and Research (StAR)</b>	<ul style="list-style-type: none"> <li>• 50 years of experience among team of 3 PhD and 2 Master's degree holders • team members are PI and Co-PI on numerous grants</li> </ul>
<b>ITS-Berkeley at UCB</b>	<ul style="list-style-type: none"> <li>• nucleus for interdisciplinary transportation research, student engagement, and outreach at UCB for 75 years • more than 45 affiliated faculty members, 95 researchers and staff, and over 150 students from a dozen UCB academic departments in 6 schools or colleges</li> </ul>
<b>ITS-Davis at UCD</b>	<ul style="list-style-type: none"> <li>• the leading university center on sustainable transportation • hosts the National Center for Sustainable Transportation since 2013 • more than 60 faculty and researchers • more than 120 graduate students</li> </ul>
<b>ITS-Irvine at UCI</b>	<ul style="list-style-type: none"> <li>• interdisciplinary transportation research including sustainability, energy, housing, land use, freight, activity systems, advanced technology • over 30 faculty members, 6 project scientists and 60 students from 7 departments</li> </ul>
<b>UCLA ITS</b>	<ul style="list-style-type: none"> <li>• multi-disciplinary research on access to opportunities, environment, new mobility, parking, public health &amp; safety, transit, traffic, transportation finance • 48 faculty, 20 research staff, 120 students across 7 degrees</li> </ul>
<b>UH National Disaster Preparedness Training Center (NDPTC)</b>	<ul style="list-style-type: none"> <li>• develops and delivers training and education related to security, disaster management, hazards, and transportation and infrastructure • focus on islands and territories • trained over 54,000 professionals, partnering with agencies, tribes, and territories.</li> </ul>
<b>UNLV Transportation Research Center (TRC)</b>	<ul style="list-style-type: none"> <li>• multidisciplinary teams researching topics across the transportation system life cycle and across modes • successfully worked on 150+ applied research projects</li> </ul>

1.2.2 Dedicated Lab Space, Specialized Computing and IT Equipment, Dedicated Transportation Personnel, and Additional Resources: Each university PSR administrative home has dedicated computing labs with equipment, software, and support staff. ITS Berkeley hosts a dedicated transportation library with full-time staff. The UC ITS employs a dedicated transportation equity specialist. Consortium members have connected vehicle testbeds (UCB's California Path), on-campus test sites for autonomous delivery systems (NAU and UCD), real-time traffic data collection and control testbeds (UCI), and archiving and analysis systems (USC). **Table 6** lists capabilities at each PSR university that are in addition to the capabilities listed in **Table 5**.

**Table 6: Other Research Facilities at PSR Member Universities**

Facility or Entity	Description
<b>USC</b>	
Center for Advanced Transportation Technology (CATT)	Simulation, vehicle dynamics, adaptive control
Integrated Media Systems Center (IMSC)	Massive databases, sensors, security, AI
Meta Center for Research & Education in AI & Learning	Scaling AI/ML systems and advanced AI education
US Census Bureau Statistical Research Data Center	Secure census data research and computing center
Spatial Sciences Institute	Advanced GIS and spatial visualization lab
<b>CSULB</b>	
Advanced Media Production unit	Video and audio production, supports PSR events
<b>UC Berkeley</b>	
Partners for Advanced Transportation Technology (PATH)	Advanced technologies and ITS
Transportation Sustainability Research Center (TSRC)	Sustainable transportation fuels, technologies, systems
Safe Transportation Research & Education Center (SafeTREC)	Safe systems approach to reduce transportation injuries and fatalities; data resources on safety
Smart Cities Research Center	Quantitative modeling of urban transportation systems
Pavement Research Center (PRC)	Research/education to advance pavement technology
ITS Library	Comprehensive transportation library
<b>UC Davis</b>	
Sustainable Freight Research Program	Sustainable trucking, supply chain mgmt., urban freight
Feminist Research Institute	Contextualized research on social and gender justice
Road Ecology Center	Impact of roads on natural landscapes and humans
<b>UCLA</b>	
Lewis Center for Regional Policy Studies	Links transport to housing and economic development
Luskin Center for Innovation	Green tech (EVs. alt. fuels) & EJ (complete streets)
UCLA Mobility Lab	AI/ML, control theory, robotics for advanced mobility
Smart Grid Energy Research Center	Tech for next gen grid; includes EV integration
<b>NAU</b>	
Advanced Computing Lab	High-performance computing; traffic simulation software

**1.2.3 Existing and New Research Programs:** While PSR builds on six years as the Region 9 UTC, the research program described here is new and based on the needs of the region and the US DOT's Strategic Plan and RD&T Strategic Plan. It will be managed as part of METRANS but will have its own governance structure. It will be structured to reflect the regional center's responsibility to address regional issues and the research priorities of the IIJA and the US DOT Strategic Plan.

**1.2.4 Research Abilities:** The qualifications of faculty relative to PSR research topics are summarized in **Table 7**. Most of our core faculty span multiple research topics, but for simplicity, **Table 7** lists each faculty member once. We identify 97 core faculty and research staff who have a demonstrated record of transportation research and are affiliated with the partner research centers. Of those, 19 core faculty members are elected members of national or international scholarly societies or winners of national awards for scholarship. The core faculty represent 22 disciplinary homes, illustrating the multidisciplinary strength of the team.

**Table 7: Research Topics and Faculty Capabilities**

Theme 1: Accessibility and Mobility for All			
Topic	Faculty		
<b>1.1: Accessibility for Underserved and Isolated Communities</b>	Charisma Acey (UCB-CED) Jesus Barajas (UCD-ESP) Tierra Bills (UCLA-CEE) Evelyn Blumenberg (UCLA-UP) Geoff Boeing (USC-UP) Daniel Chatman (UCB-CED) Courtney Coughenour (UNLV-PH) David Damore (UNLV-PS) Joseph DiMento (UCI-UP)	Karen Frick (UCB-CED) Michael Hyland (UCI-CEE) Karl Kim (UH-URP) Anastasia Loukaitou-Sideris (UCLA-UP) Nicholas Marantz (UCI-UP) Sarah McCullough (UCD-FRI) Shashi Nambisan (UNLV-CEE) Susan Pike (UCD-ITS) Daniel Rodriguez (UCB-CED)	Avipsa Roy (UCI-UP) Lisa Schweitzer (USC-UP) Susan Shaheen (UCB-CEE) Suwan Shen (UH-URP) Brian Taylor* (UCLA-UP) Joan Walker* (UCB-CEE)
<b>1.2: Improving the Efficiency of the Mobility System</b>	Alexandre Bayen* (UCB-CEE) Wolfgang Bein (UNLV-CS) William Brown (UNLV-BMW) Jan Brueckner* (UCI-Econ) Alfred Chen (UCI-CS) Qi Chen (UH-GE) Jayce Farmer (UNLV-PP&L) Steven Gehrke (NAU-GPR) Filip Ilievski (USC-CS) Petros Ioannou* (USC-EE)	R. Jayakrishnan (UCI-CEE) Jae-Hong Kim (UCI-PPD) Jiaqi Ma (UCLA-CEE) Michael Manville (UCLA-UP) Andreas Molisch* (USC-ECE) Maria Laura Delle Monache (UCB-CEE) Michael McNally* (UCI-CEE) Andrii Parkhomenko (USC-Bus)	Brendan Russo (NAU-CEE) Cyrus Shahabi* (USC-CS) Donald Shoup* (UCLA-UP) Edward Smaglik (NAU-CEE) Kenichi Soga* (UCB-CEE) Hualiang Teng (UNLV-CEE) Andrew Woods (UNLV-Bus) Michael Zhang (UCD-CEE)
<b>1.3: Broadening Access to Low/Zero Carbon Transport</b>	Antonio Bento (USC-PP) Hilda Blanco (USC-PP) Marlon Boarnet* (USC-UP) Giovanni Circella (UCD-CEE)	Dillon Fitch (UCD-ITS) Susan Handy (UCD-ESP) Alan Jenn (UCD-ITS) Adam Millard-Ball (UCLA-UP)	Caroline Rodier (UCD-ITS) Fraser Shilling (UCD-ITS)
Theme 2: Sustainable and Resilient Supply Chains			
<b>2.1: Env. Justice Problems in Goods Movement</b>	Oceana Francis (UH-CEE) Douglas Houston (UCI-UP) Jacqueline Hunyh (UCI-MAE)	Wendy Meguro (UH-Arch) DeSoo Moon (UH-CEE) Brendan Morris (UNLV-ECE)	Regan Patterson (UCLA-CEE) Jun Wu (UCI-EHS)
<b>2.2: Goods Movement System Efficiencies and Resilience</b>	John Gunnar Carlsson (USC-ISE) Maged Dessouky* (USC-ISE) Wenlong Jin (UCI-CEE)	Geraldine Knatz* (USC-CEE) Jeehee Lee (UNLV-CEE) Jong-Shi Pang * (USC-ISE) Dan Wei (USC-PP)	Stephen Ritchie*(UCI-CEE) Ketan Savla (USC-CEE) Sze-Chuan Suen (USC-ISE)
<b>2.3: Decarbonizing the Goods Movement System</b>	Yueyue Fan (UCI-CEE) Lew Fulton (UCD-ITS) Genevieve Giuliano* (USC-UP)	Miguel Jaller (UCD-CEE) Stephen Miller (UNLV-Econ) Adam Rose* (USC-PP) Scott Samuelsen (UCI-MAE)	Jean-Daniel Saphores (UCI-CEE) Daniel Sperling* (UCD-CEE)

**Cross-Cutting Topic: Access to Opportunity Through Strategic Workforce Development**

<b>Access to Opp. Through Strat. Workforce Dev.</b>	Amanda Abens (PCC-WFD) Missy Blair (PCC-CTT) Jaewon Lim (UNLV-PP&L) Stephen Miller (UNLV-Econ)	Thomas O'Brien (CSULB-CITT) Gary Painter* (USC-PP)	Tyler Reeb (CSULB-CITT) Ian Roark (PCC-WFD) Chris Theriot (PCC-LGM)
---	---	---	---

\*Elected member of scholarly society and/or recipient of national award for scholarship

Legend: Arch = Architecture; BMW = Brookings Mountain West; Bus = Business; CED = College of Environmental Design; CEE = Civil & Environmental Engineering; CITT = Center for International Trade & Transportation; CTT = Center for Transportation Training; CS = Computer Science; ECE = Electrical & Computer Engineering; Econ = Economics; EHS = Environmental Health Sciences; ESP = Environmental Science & Policy; FRI = Feminist Research Institute; GE = Geography & Environment; GPR = Geography, Planning, & Recreation; ISE = Industrial & Systems Engineering; ITS = Institute of Transportation Studies; LGM = Logistics & Supply Chain; MAE = Mechanical & Aerospace Engineering; PH= Public Health; PP = Public Policy; PP&L = Public Policy & Leadership; PS = Political Science; UP = Urban Planning; URP = Urban & Regional Planning; WFD = Workforce Development

**Scholarly Contributions:** Scholarly accomplishments of the core faculty are outstanding. They have: 1) published 2,393 refereed journal articles since 2016; 2) received numerous awards/honors in recognition of scholarship/leadership (**Table 8**); and 3) led 192 internationally peer-reviewed journals, serving as an editor or editorial board member.

**Table 8: Selected Awards and Honors of PSR Faculty**

**Awards include** Members of National Academy of Engineering (3), NSF Career awards (7), Fellows of: American Association for the Advancement of Science (1), American Institute of Certified Planners (2), American Society of Civil Engineers (1), Homer Hoyt Institute of Real Estate (2), Institute of Electrical and Electronics Engineers (4), Institute of Industrial and Systems Engineers (1), Regional Science Association International (4)

**Other Awards and Honors (selected):**

- Barajas (UCD), **Charley Wootan Memorial Award** (best dissertation Transport Policy & Planning), CUTC 2017
- Blair (Pima), **Women to Watch in Transportation**, Women in Trucking, 2019
- Carlsson (USC) Finalist, **INFORMS Edelman Prize**, 2021; **Popular Science magazine's Brilliant 10**, 2016
- Circella (UCD), **Honda Distinguished Scholar for New Mobility Studies**, 2018-present
- Giuliano (USC), **Walter Isard Award for Distinguished Scholarship** in Regional Science, 2017
- Giuliano (USC), Knatz (USC), Sperling (UCD), **Thomas B. Deen Lectureship**, TRB
- Knatz (USC), Ioannou (USC), and Sperling (UCD), **National Academy of Engineering** members
- Pang (USC), **Fellow of the Institute for Operations Research and Management Science**, 2019
- Ritchie (UCI), **Best Paper Award** TRB Subcommittee on Travel Time, Speed, and Reliability, 2019
- Savla (USC), **American Automatic Control Council Donald P. Eckman Award**, 2017
- Shaheen (UCB), **TRB Roy W. Crum award**, 2017
- Soga (UCB), **International Fellow, Engineering Academy of Japan**, 2021
- Taylor (UCLA), **Charley Wootan Best Paper Award**, TRB, 2016

Legend: NSF = National Science Foundation; CUTC = Council of University Transportation Centers; INFORMS = The Institute for Operations Research and the Management Sciences; ACSE = American Society of Civil Engineers

**Examples of Significant Impacts of Past Research:** Boeing (USC) developed the widely adopted open source OSMnx software, which allows rapid analysis of Open Street Map for locations worldwide. Handy (UCD) has published more articles on bicycle travel than any author worldwide. Ioannou (USC) is an international expert in adaptive control and has consulted with major automotive companies on adaptive cruise control. Nambisan (UNLV) has codified methods to identify pedestrian crash zones. Shoup (UCLA) has highlighted the negative effects of free parking and his writings have become the go-to



source for practice throughout the US and abroad. Smaglik and Russo (NAU) developed mathematical procedures along with an embedded algorithm to assist Oregon DOT in identifying traffic detectors that are not performing properly.

## **2. Criterion Two: Leadership**

**2.1 Research Leadership:** PSR is a national and international leader in transportation research, education, workforce training, and technology transfer. METRANS has managed large research contracts for decades, including the current PSR Region 9 UTC. METRANS has also served as the administrative home for research collaborations that span globally (e.g., MetroFreight, which includes five US universities plus the French Institute of Science and Technology for Transport Development and Networks and the Korea Transport Institute) and nationally (e.g., the Southwest Transportation Workforce Center, a consortium of five partners.) Our PSR partners are equally experienced with large grant administration and national and international leadership.

### **2.1.1 Leadership in Transportation Research:**

**Publications:** The 13 key faculty personnel on this proposal have published 119 refereed journal articles since January 2020. Boarnet, Giuliano, and Rodriguez are in the 97<sup>th</sup> percentile by citations among urban planning scholars in the US and Canada.<sup>15</sup> Handy is even more highly cited, with a Google Scholar H-Index of 77. Kim (UH) has edited two journals on transportation safety and interdisciplinary transportation research.

**Committee Work and Professional Transportation Organizations and Conferences:** The PSR core faculty have served on 63 TRB committees, including three former chairs of the TRB executive committee (Giuliano, Shaheen, and Sperling.) PSR faculty have served on the Council of University Transportation Centers (CUTC) executive committee, as president (Giuliano, Nambisan, and O'Brien), and as members (Handy.) The PSR Director, Boarnet, is the immediate past-president of the Association of Collegiate Schools of Planning and has served on several TRB committees. Several PSR faculty members have served on study committees of the National Research Council/TRB including, in recent years, Rodriguez, Shaheen, Sperling, and Taylor. PSR faculty have a long record of delivering keynotes and organizing sessions at conferences.

**Awards:** PSR faculty are members of national academies and winners of national and international awards for their research (see **Table 8**).

**Other Indicators of Leadership Excellence:** In Fall 2021, when supply chains were in crisis and the west coast ports had backlogs, O'Brien (CSULB) coordinated the Supply Chain Success Initiative for the California Governor's Office of Business and Economic Development. The group's recommendations contributed to a coordinated response to the ports' backlog and helped stabilize the crucial Southern California goods movement system. Blumenberg (UCLA) was named a White House Champion of Change in 2014 for her research on transportation access among the poor. PSR's *Transfers* magazine won the 2021 Award of Merit from the California American Planning Association (APA)

---

<sup>15</sup> See citation analysis at <http://scholarmetrics.com/metrics>; supporting information at <http://tomwsanchez.com/urban-planning-faculty-citation-counts/>.



and the 2022 Award of Merit from APA Los Angeles. Four of the past seven winners of the Association of Collegiate Schools of Planning (ACSP)'s best dissertation award for US and Canada were PSR students. PSR's record of placing students into the most competitive jobs at universities, industry, and government is exceptional (details in Criterion 3.)

**2.1.2 Experience Contributing to Solving Regional and National Transportation Problems:** Our faculty are leaders in solving transportation problems. We cite only a few of the many examples of the impact of our work below.

*Public Policy Advisement:* Boarnet and Handy advised the California Air Resources Board on implementation of the state's GHG reduction program, which led to the first-ever state legislation to shift traffic impact analysis from level-of-service to vehicle miles traveled. Tang (UNLV) is a Commissioner of the Nevada High Speed Rail Authority. Giuliano serves on Los Angeles County Metropolitan Transportation Authority (LA Metro)'s task force to evaluate options for the I-710 freight corridor. Sperling (UCD) is a member of the California Air Resources Board. Jenn's (UCD) PSR research directly informed the California Energy Commission's efforts for deploying EV charging infrastructure.

*Technical Assistance to State and Local Agencies:* Russo (NAU) developed Crash Modification Factors to quantify risks for collision at street median openings for the City of Scottsdale. Russo and Smaglik (NAU) advised on the City of Phoenix's transportation safety plan. Loukaitou-Sideris's (UCLA) work informed LA Metro's plan for gender discrepancies in public transit, helping them emerge as a national leader in gender-informed transit planning. Ritchie's (UCI) PSR research on LiDAR truck classification stands to greatly improve the forecasting of freight flows; Ritchie regularly communicates with the California Department of Transportation (Caltrans) as the work proceeds.

**2.1.3 Demonstrated Leadership in Delivery of Programs:** PSR consortium members have demonstrated an outstanding record in the development and delivery of innovative programs. In addition to seminars and webinars for researchers and advanced practitioners, visiting speakers, policy forums (locally and in Washington, DC) and legislative briefings, some major accomplishments include:

*Establishment of Signature Events:* *Asilomar Conference on Transportation and Energy*, founded by ITS-Davis in 1988, the premier event on this topic in the nation; *UCLA Lake Arrowhead Symposium on the Transportation - Land Use - Environment Connection*, founded in 1991, a preeminent policy leadership event; *METRANS Town Hall*, a forum for diverse stakeholders to discuss international trade-related problems in Southern California; *METRANS International Urban Freight Conference*, premier venue for interdisciplinary urban freight research and key in establishing urban freight as a new, multidisciplinary field of study in transportation.

*Development of Interdisciplinary Degree Programs:* ITS-Davis established the *Transportation Technology and Policy* graduate degree that draws from many disciplines. ITS-Irvine developed the *Transportation Science* graduate degree, a joint degree of



engineering, economics, and planning. METRANS facilitated the establishment of the interdisciplinary *Transportation Systems graduate certificate* program at USC.

*Innovative Workforce Development and Training Programs:* The National Disaster Preparedness Training Center (NDPTC) at UH is a Federal Emergency Management Agency (FEMA)-authorized training provider and has developed and provided FEMA-certified training in every US State and Territory. Pima has designed an Autonomous Vehicle Driver and Operations Specialist certificate, the first of its kind in the country (see Criterion 3); TuSimple, an innovator in autonomous trucking, donated a vehicle to Pima to provide enhanced learning experiences for students. CSULB's leadership in developing the High School Academy of Global Logistics (AGL) program with the Port of Long Beach was recognized with the 2018 Regional Engagement Award and the 2019 National Engagement Award by the University Professional and Continuing Education Association (UPCEA). CSULB partnered with Los Angeles Trade Tech Community College to deliver an introduction to geographic information system and transportation to dual-enrolled high school and community college students that won a Los Angeles APA Award for Opportunity and Empowerment.

**2.1.4 Plans for Development of Future Leaders:** We will continue our research and education programs that cultivate new leaders: 1) engaging junior faculty members in PSR research; 2) providing postdoctoral positions; 3) engaging graduate and undergraduate students in PSR research; 4) conducting mentor programs to connect students with professional leaders; 5) supporting student travel to professional and academic events; and 6) providing volunteer and networking opportunities to students. We will expand our already deep leadership role in the following ways: 1) We will expand our successful student mentoring program to our Minority-Serving Institutions (see Criterion 3). 2) We will encourage faculty to take leadership roles in TRB, CUTC, and their scholarly associations. 3) We will encourage junior faculty to pursue PSR research grants, and we will continue our program of student fellowships and awards.

**2.2 PSR Contribution Toward Leadership in the US DOT Strategic Plan Goals:** Our research, education, and workforce development programs will all be focused on the US DOT strategic goals of **Equity, Economic Strength and Global Competitiveness, and Climate and Sustainability**. The PSR faculty have substantial leadership on these topics. For example, UCD has established an environmental justice fellowship, which brings equity leaders from the transportation practice community to campus. USC redesigned its Master of Urban Planning to focus on equity throughout the curriculum. CSULB, Pima, and UH all have extensive workforce development programs. Our PSR student mentoring program (see Criterion 3) and our partnerships across sectors including logistics and goods movement associations (see Criterion 4) also provide ready links that will build leadership that advances US DOT strategic goals.

## 2.3 Performance Metrics

**Table 9: Leadership Performance Metrics**

1. Number of professional practice or service activities conducted by PSR faculty
2. Number of professional leadership positions in TRB, CUTC, or professional or industry organizations

- |    |   |
|----|---|
| 3. | Number of junior faculty, graduate students, and recent graduates taking leadership positions in TRB, CUTC, or professional or industry organizations |
| 4. | Number of junior faculty participating in PSR research, education, or outreach activities   |

### **3. Criterion Three: Education and Workforce Development**

PSR trains professionals who will lead in planning, designing, operating, and maintaining the complex transportation systems of the future. We will build our education and workforce program on an exceptional foundation of transportation teaching talent and experience. We train much of the transportation workforce in the region and the nation. Graduates of PSR programs are directors of state DOTs and Metropolitan Planning Organizations (MPOs), elected officials, and leaders in the private sector. A partial list of our outstanding alumni in professional practice is in **Table 10**. Additionally, 20 graduates of UCLA ITS hold faculty positions at universities worldwide, including UCB, Harvard, Rutgers, and the University of Virginia. USC METRANS graduates are on faculty at Arizona State University, the University of Pennsylvania, UCD, and UCLA. UCI and UCD graduates are on faculty at the University of Minnesota, UCI, and Georgia Tech, among others.

**Table 10: Examples of PSR Alumni Professional Leadership**

Leo Asunción, Past President, <b>American Planning Association</b>
Todd Boulanger, CEO, <b>Hawai'i Bikeshare</b>
Tilly Chang, Director, <b>San Francisco County Transportation Authority</b>
Seth Contreras, Advisor for Innovation - Policy, <b>New York City Department of Transportation</b>
Scott Glen, CEO, <b>Hawai'i State Energy Office</b>
Kate Gordon, Senior Advisor to the <b>US Secretary of Energy</b> , former Director of <b>CA Governor's Office of Planning and Research</b>
Hasan Ikrata, CEO, <b>San Diego Association of Governments</b>
Nicole Lowen, Representative, <b>Hawai'i State Legislature</b>
Kurt Luhrsen, Vice President of Operations, <b>Metropolitan Transit Authority of Harris County</b> (Houston, TX)
Therese McMillan, Executive Director of the <b>Metropolitan Transportation Commission</b> (San Francisco Bay Area MPO), Acting FTA administrator March 2014 to March 2016
Nadine Nakamura, Representative, <b>Hawai'i State Legislature</b>
Srinivas Nandiraju, Senior Leader, Supply Chain Optimization and Data Science, <b>Apple</b>
Jon Nouchi, Deputy Director of Department of Transportation Services, <b>City and County of Honolulu</b>
Ray Sosa, Vice President, West Region, Transportation Planning Market Sector Manager, <b>AECOM</b>
Greg Spotts, Director, <b>Seattle Department of Transportation</b>
Kristina Swallow, Director, <b>Nevada Department of Transportation</b>
Allison Yoh, Executive Officer for Mobility Corridors, Countywide Planning and Development, <b>LA Metro</b>

PSR offers much more than traditional college and postgraduate education. We are one of the first UTCs to include a community college (Pima). With PSR support, Pima moved their logistics program online and increased enrollment by 150% within the first two semesters. CSULB works with Cabrillo High School in Long Beach as part of the Academy of Global Logistics, designing and delivering a two-semester logistics and supply chain capstone class that is fully approved for transfer credits to the UC and CSU systems. CSULB also hosts the Global Logistics Professional program (awarded "outstanding program" by the University Continuing Education Association in 2007) and the Marine Terminal Operations certificates. The National Disaster Preparedness Training Center at UH trains between 5,000-8,000 first responders each year.



**3.1 Degree Granting Programs and Faculty:** Our degree programs with transportation components graduated over 6,000 students in 2020-21, the most recent year with complete data available (**Tables 11 and 12**). Our students are educated in a wide interdisciplinary mix of degree programs spanning engineering, computing, policy, planning, sustainability, and much more (**Table 13**).

**Table 11: Degrees Conferred in Programs with Transportation Components**

Degree	2016-17			2017-18			2018-19			2019-20			2020-21			2021-22		
	U	M	P	U	M	P	U	M	P	U	M	P	U	M	P	U	M	P
<b>USC</b>	349	900	99	313	976	129	345	932	119	368	999	98	428	1004	95	291	589	57
<b>CSULB</b>	250	39	0	311	63	0	335	32	0	321	32	0	347	28	0	345	31	0
<b>NAU</b>	76	5	0	77	4	0	72	8	0	50	7	0	59	7	0	54	4	0
<b>UCB</b>	29	44	6	125	68	10	132	92	8	108	90	8	118	59	8	129	98	9
<b>UCD</b>	186	115	50	257	102	51	242	147	59	265	133	52	263	124	47	-	-	-
<b>UCI</b>	1829	357	186	1849	370	204	2014	444	250	2476	416	246	2453	408	321	-	-	-
<b>UCLA</b>	68	235	20	71	206	19	64	232	19	87	200	21	148	189	19	157	204	15
<b>UH</b>	116	53	28	134	43	32	111	42	17	115	30	22	110	46	18	15	53	1
<b>UNLV</b>	506	242	21	504	223	28	535	239	21	565	266	52	620	298	29	-	-	-
<b>Total</b>	<b>3409</b>	<b>1990</b>	<b>410</b>	<b>3641</b>	<b>2055</b>	<b>473</b>	<b>3850</b>	<b>2168</b>	<b>493</b>	<b>4355</b>	<b>2173</b>	<b>499</b>	<b>4546</b>	<b>2163</b>	<b>537</b>	<b>991</b>	<b>979</b>	<b>82</b>
<b>Degree</b>	<b>A</b>			<b>A</b>														
<b>Pima</b>	7			10			11			7			8			3		

Legend: A = Associates degree; U = Undergraduate degree; M = Master's degree; P = PhD (UCI JD classified as PhD); “-“ = final 2021-2022 degree numbers not available at time of proposal due to quarter system

**Table 12: Faculty/Graduate Assistants in Programs with Transportation Components (2022)**

Partner	USC	CSULB	NAU	UCB	UCD	UCI	UCLA	UH	UNLV	Pima*	Total
<b>Faculty</b>	215	28	27	25	85	355	11	45	151	7	631
<b>GA</b>	196	4	10.5	71	185	46	26	52	138		728.5

Legend: GA = Graduate Assistantship; \* Pima does not have GA positions.

**Table 13: Accredited Degree Programs with Transportation Components and/or Specializations**

<b>USC</b>	Urban Planning (U, M, P), Real Estate (U), Public Policy (U, M, P), Public Admin. (M), Civil Eng. (U, M, P), Comp Sci (U, M, P), Elect. Eng (U, M, P), Env. Eng. (U, M, P), Green Tech (M), Industrial & Systems Eng. (U, M, P), Operations Research Eng. (M)
<b>CSULB</b>	Business Admin. (Operations & Supply Chain Mgmt option) (U), Sustainability Mgmt & Policy (M), Civil Eng. (U, M), Construction Mgmt (U)
<b>NAU</b>	Civil Eng. (U, M), Construction Mgmt & Env. Eng. (U, M) Geo Sci & Community Planning (U), Land Use Planning (M)
<b>Pima</b>	Logistics & Sup Chain Mgmt (A)
<b>UCB</b>	Civil & Env. Eng./ Transportation Eng. (U, M, P), City & Regional Planning (U, M, P)
<b>UCLA</b>	Urban & Regional Planning (M, P), Public Policy (M), Civil Eng. (U, M, P), Env. & Sustainability (P), Public Affairs (U)



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

<b>UH</b>	Urban & Regional Planning (M), Civil & Env. Eng., Architecture (U, P), Public Admin (M)
<b>UCD</b>	Agriculture & Resource Econ. (M, P), Ag. & Env. Education (U), Civil & Env. Eng. (U, M, P), Community & Regional Development (U), Community Development (M), Ecology (M, P), Env. Policy & Mgmt (M), Transportation Tech & Policy (M, P), Env. Policy Analysis & Planning (U)
<b>UCI</b>	Civil & Env. Eng. (U, M, P), Comp. Sci (U, M, P), Data Sci (U), Econ. (U, M, P), Elect. & Computer Eng. (U, M, P), Law (JD), Mech. & Aero. Eng. (U, M, P), Planning, Policy, & Design (M, P), Social Ecology (U, M, P), Transportation Sci (U, M), Urban & Regional Planning (U, M, P)
<b>UNLV</b>	Civil & Env. Eng. (U, M, P), Comp. Sci (U, M, P), Construction Mgmt. (U, M), Elect. Eng. (U, M, P), Mech. Eng. (U, M, P), Transportation (M), Informatics (U)

Legend: A= Associates degree; U = Undergraduate degree; M = Master's degree; P = PhD (JD, classified as PhD); Admin. = Administration; Aero. = Aerospace; Ag. = Agriculture; Comp Sci = Computer Science; Econ = Economics ; Elect. = Electrical; Eng. = Engineering; Env. = Environmental; Geo Sci = Geographic Science; Mgmt = Management; Mech. = Mechanical; Sci = Science; Sup = Supply; Tech = Technology

PSR will continue to support these degree programs in the following ways: 1) All research projects will include students, immersing students in the research experience; 2) At some PSR universities, funds will support student-led, faculty supervised research that contributes to degree requirements (e.g., capstone or thesis work); 3) We will continue our successful mentoring programs that link students to careers; 4) We will continue to include students as presenters and invitees to research and practice seminars; 5) We will continue and expand student involvement in external fellowship programs (e.g., Federal Highway Administration [FHWA] Eisenhower Fellowships); 6) We will continue to involve students in events of the Institute of Transportation Engineers (ITE), Women's Transportation Seminar, and other professional organizations. Additionally, METRANS funds will support expanding a new certificate program in autonomous vehicles developed by Pima, and we will launch a new *Transportation Pathways* program aimed at diversifying the transportation workforce.

**3.2 Non-Degree Programs:** CSULB offers both the *Global Logistics Professional (GLP)* and *Marine Terminal Operations Professional (MTOP) Program*. The award-winning GLP is designed to meet the training needs of individuals at various stages of their careers in logistics. The MTOP trains future marine terminal managers in all aspects of terminal operations including containerized cargo and labor negotiations. In the 2021-22 academic year, 59 students were enrolled in the GLP and MTOP programs and 11 students received the GLP Professional designation. UTC grant funds will support the extension of student engagement activities, including field trips and seminars, to students in the non-degree GLP and MTOP programs.

UH's planning program hosts the *National Disaster Preparedness Training Center (NDPTC)*, which develops and delivers FEMA-certified training courses on disaster preparedness, response, and recovery. Since 2016, 35,144 individuals have completed the NDPTC training and in 2021-22, 6,070 individuals received the certification (lower than average due to COVID-19 pandemic). UTC grant funds will be used to determine the gaps and needs in training for transportation agencies and professionals, and to refine curricula to respond to those gaps.

Pima hosts an autonomous vehicle driver certificate, described later under support for emerging technologies. This new program had 3 graduates in 2021-2022. UTC grant



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

funds will be used to reach additional students, through adding online elements to the Pima program or porting the curricular expertise to partner programs.

**3.3 Involvement of Minority-Serving Institutions:** CSULB and Pima excel at responding to workforce needs, and they have developed first-in-the-nation programs (MTOP [CSULB], autonomous vehicle drivers and driver support [Pima]), which will be enhanced by the UTC funding. All three minority institutions will be involved in our new Transportation Pathways program (described below), linking their student groups to K-12 students in their area (UNLV), and providing links to advising staff at community college (Pima) and K-12 schools (CSULB and Pima). We will expand two existing PSR activities, described below, to our minority institution partners.

Student Mentoring (continuing, expanded): The PSR-supported, METRANS-administered student mentor program will be expanded to include students at each minority-serving institution. Students are paired with a professional mentor from the transportation industry. **Audience:** We anticipate approximately 20-40 students will participate per year.

Eisenhower Fellowships (expanded): CSULB has been selected by FHWA as an administrator of a Dwight David Eisenhower Transportation Fellowship Program (DDETFP) Local Competition. PSR funds will allow additional outreach to students at CSULB to facilitate their participation in this program. PSR will also support students at Pima and UNLV in applying for DDETFP support. **Audience:** Scores of students already apply to the DDETFP program across our PSR universities, and last year 15 PSR students won fellowships. We anticipate that we will generate approximately 4-6 new DDETFP applicants at CSULB and aim for an additional 4-6 at Pima and UNLV.

**3.4 Certification Programs that Support Emerging Technologies:** Pima has launched an Autonomous Vehicle Driver and Operations Specialist certificate, with PSR support and in partnership with TuSimple, a developer of self-driving technologies designed to meet the unique demands of heavy-duty trucks. The program is a five-course certificate that includes industrial safety, computer hardware components, automated industrial technology, and electrical systems. The program was built to upskill current commercial driver's license (CDL) holders for the future of work but has evolved to also serve non-CDL holders. We will use PSR funds to expand this program to reach additional students, either by introducing online elements to the Pima program or porting the curricular expertise to partner programs. **Audience:** We anticipate increasing the reach of this program by an additional 20 students per year.

### **3.5 Addressing Equity and Barriers to Opportunity**

Transportation Pathways (new): We will build training materials and an online workshop to provide information on education pathways that will draw diverse students into transportation careers. To expand the reach, we will focus our materials and training on potential influencers – guidance counselors in high school and college and staff in community programs. We will use our existing links to school districts, community programs, and college advisors to build a network through which we will offer online



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

workshops to educate these influencers on transportation career paths for their students. CSULB has relationships with the Long Beach Unified School District, Pima has dual enrollment programs with over 50 high schools in the Tucson area, and our own network of college program advisors spans our 10 PSR partners. We will create short online workshops and web-based materials about transportation careers and education pathways for students. This new program will be administered by the USC METRANS Manager of Student Engagement, in collaboration with the PSR partners at CSULB and Pima. Additionally, we will pilot connecting university student groups to K-12 students to raise transportation awareness, starting with UNLV. **Audience:** We anticipate reaching 50-100 counselors, advisors, and community program staff members each year, who in turn can reach thousands of students.

**3.6 Educational Seminars, Workshops, and Student Tours (continuing):** PSR hosts approximately 12 seminars each year, available online for students at all PSR institutions. Hosting rotates across the partners. Speakers are from government, industry, public interest groups, and academia. Partners incorporate the PSR seminars into their own seminar series. Additionally, PSR students are encouraged to present their own research in a seminar format annually. **Audience:** Approximately 10-20 students in bachelor's, master's, and PhD degree programs per seminar.

PSR supports student tours to transportation sites. These are either combined with classes or publicized through classes. **Audience:** Approximately 40-60 students in bachelor's and master's degrees each year.

Emerging Scholars Symposium is a one-day event held annually at USC. PhD students from throughout the consortium present their dissertation research and meet their peers. Sessions are moderated by PSR faculty, and keynote speakers are faculty or industry leaders. **Audience:** Approximately 12-20 PhD students per year.

**3.7 Outreach and Education to Attract New Entrants to the Transportation Field:** Our primary programs to attract new entrants will be the Transportation Pathways program (new, described above) and the following continuing programs:

K-12 Initiatives (continuing): CSULB will provide curriculum development and teacher support to the four-year immersive Academy of Global Logistics (AGL) at Cabrillo High School. In addition, USC will continue these K-12 programs: Hybrid High School uses transportation to introduce high school students from underrepresented backgrounds to college readiness (match funded); Futures in Transportation (NSF and USC funded) introduces high school students to STEM careers in freight, including automation and clean fuels; and Across the Seas (match funded with support from Port of Long Beach) introduces middle school and high school students to goods movement, freight, and the environment. **Audience:** Approximately 30 students in each program per year.

Students at International Urban Freight (I-NUF) Conference (continuing): PSR provides major support to the I-NUF conference, a major freight research and practice conference. We include students at all levels, from K-12 through graduate school, at the conference.

Graduate students present research and attend sessions. Cabrillo High School AGL students attend the sessions, and I-NUF attendees have spoken with Cabrillo students during the conference week. **Audience:** Approximately 12-20 graduate students and 30 high school students.

**Fellowships (continuing):** Our research program includes fellowships that attract students to our degree programs and support student-led, faculty-supervised research. **Audience:** Approximately 10-12 students per year.

**Post-Doctoral Program (continuing):** We recruit post-doctoral students to work on PSR research, providing a bridge from PhD education to academic or industry careers. **Audience:** 1-2 postdoctoral fellows per year.

**3.8 Activities to Increase Interest in STEM, Recruit and Retain Diverse Faculty:** Our K-12 programs (Cabrillo AGL, Hybrid High School, Futures in Transportation) introduce students to STEM fields. Our student-led graduate fellowship program helps recruit diverse students. Several PSR universities have strong educational programs on transportation equity, and we will convene sessions at our PSR Annual Congress (see Criterion 4) to feature those innovative curricular elements.

**3.9 Additional Education and Workforce Development Programs:** We will continue our non-degree workforce development programs and add new ones.

**Transportation Planning Professional Certificate + (new):** CSULB will develop and pilot an innovative training program that teaches skills demanded by employers in both public and private transportation organizations but not normally taught in traditional urban planning programs. Topics include data visualization, modeling principles for non-modelers, mastering the public hearing, project management and budgeting, grant writing, and working with diverse communities. The cohort-based pilot will include representatives from underserved communities, including tribal communities and local agencies (including rural agencies) with limited training budgets. **Audience:** 10-20 professionals and community members per year.

**Online Commercial Driver's License (CDL) Training (continuing):** PSR funds expanded the Pima CDL program to an online format, reaching many underrepresented students, including students from tribal communities. We will continue that program. **Audience:** 60-75 students per year.

**Training that Builds Agency Capacity to Understand Workforce Changes (new):** PSR's previous research has shown that agency mid-level staff need training to adapt to transportation's rapidly changing workforce context.<sup>16</sup> We will canvass state DOTs and MPOs to assess their training needs, and based on our findings, we will design a workforce program that helps DOT/MPO staff understand the changing transportation labor market. Potential topics include: navigating transit labor markets to hire/upskill staff; new skill sets required by automation and electric vehicles and associated changes in

<sup>16</sup> Reeb, Tyler (ed.) Empowering the New Mobility Workforce. Elsevier. 2019.



demand for occupations. While DOTs and MPOs have responsibilities that span from transportation to economic development, many agency staff are ill equipped to understand the workforce impacts that alternative fuels, electrification, and automation will bring. Coursework will likely be in webinar or recorded format to reach a regional audience, with potential sessions at the PSR Annual Congress to supplement online/recorded training. **Audience:** Approximately 50-100 transportation planners at DOTs/MPOs in key positions throughout Region 9.

**Micro-Pathways for Logistics (new):** Pima has designed micro-pathways (flexible, stackable course curricula) to provide increased access and better outcomes for adult learners. These micro-pathways (called PimaFastTracks) are built in collaboration with employers and are designed to lead unemployed and under-skilled individuals to jobs in high-demand occupations. Since launching in Fall 2021, PimaFastTracks has enrolled 106 students, of whom 64% are first generation college and 76% are from groups underrepresented in higher education. Pima will use UTC grant funds to create a Logistics and Supply Chain PimaFastTrack program that will focus on skills development to open logistics jobs as opportunities for under-employed or under-skilled students. **Audience:** Approximately 20 adult students per year.

**3.10 Support of Research Challenges, US DOT Strategic Goals, and KPI's:** Our education and workforce programs advance many of the challenges listed under **Improving Mobility of People and Goods**. Freight and Transportation Equity are integral to our programs from K-12 through university degrees. Our education programs are multi-modal, advancing both Multimodal System Planning and Mobility Innovation. The Pima certificate on autonomous vehicle driver advances Automated and Connected Vehicles. We advance the US DOT goals of **Equity, Economic Strength and Global Competitiveness, and Climate and Sustainability** throughout our education programs by: 1) Continuing programs that diversify the transportation workforce and building new diversity programs, 2) Workforce training that upskills professionals who are often in or serve underrepresented groups, 3) Curricula, including K-12 instruction, to introduce students to the role of freight and logistics in the economy, and 4) Supporting students in some of the most environmentally cutting-edge transportation degree programs in the nation. By drawing a more diverse pool of students into transportation education and careers, we will advance the KPI "Work to increase the diversity of applicants for mission critical occupations in each operating agency" under the US DOT Organizational Excellence strategic goal.

### 3.11 Performance Metrics

**Table 14: Education and Workforce Development Performance Metrics**

1. Number of students in transportation-related degree programs: a. number graduated; b. enrollments or graduations from under-represented groups
2. Number and diversity of students in transportation-related non-degree/professional/certificate programs
3. Number of workforce development programs or events: a. number of participants; b. number of participants from underrepresented groups

4. Number of participants in the Transportation Pathways program
5. PhD student and post-doc placement record

#### **4. Criterion Four: Technology Transfer and Collaboration**

Our technology transfer programs are not siloed from our research and education. As only one example, our community-partnered research projects will start with community engagement as the first step in the research, building a ready bridge to technology transfer. More broadly, we leverage our research and education networks throughout our technology transfer program.

**4.1 Technology Transfer Activities:** The primary PSR technology transfer activities will be 1) *Transfers* magazine, which communicates research results in clear, non-technical language; 2) Signature events, including but not limited to the METRANS International Urban Freight (I-NUF) conference, Region 9's premier venue for linking academia and industry on goods movement topics; 3) Research briefs that summarize research projects into 2-page notes, posted on the PSR web page; and 4) A long tradition of and commitment to engagement with transportation professionals and technical assistance.

##### 4.1.1 Dissemination of Research Results:

**Events:** PSR partners host some of the most high-profile transportation events in the region (**Table 15**). Since 2016, PSR-supported conferences, seminars, and events have drawn over 8,800 attendees. All events in **Table 15** have PSR support and will continue; those in bold have major support from PSR. We will add a **new event, DOT Symposia at Annual Congress**, which follows a successful pilot workshop in 2022 that brought 300 staff from the California and Hawai'i DOTs together at the end of the PSR Annual Congress for learning and technology transfer sessions.

Our longstanding ties throughout the region, illustrated in part by our record of hosting many of the region's signature transportation events, well positions us to coordinate among other UTCs and related programs in the region. We will expand invitations to our PSR Annual Congress to other UTCs in the region, to build our Annual Congress into a venue that fosters communication and collaboration across all the region's UTCs.

**Table 15: PSR Signature (bold) and Sponsored (non-bold) Events**

Event	Host	When	Purpose	Attendees	Comments
<b>PSR Annual Congress</b>	PSR, since 2017	Annual, Spring	Communicate research results to practice	125-150 from state DOTs, agencies, industry, and PSR	Panels combine PSR researchers and practice leaders
<b>DOT Symposium at PSR Annual Congress</b>	PSR (new to this grant; 2022 pilot)	Annual, Spring	Convene DOT staff to learn from each other and from PSR	300 from CA and HI in virtual workshop, Spring '22	Successful Spring '22 pilot, will expand to include other DOTs

Event	Host	When	Purpose	Attendees	Comments
<b>Trade and Transportation Industry Town Hall</b>	METRANS, CSULB CITT, since 2000	Annual, Fall	Educational forum to explore transportation and trade issues	100-150 from industry, gov't, organized labor, community	Includes custom video production, sent to schools, media; won state and nat'l prizes
<b>International Urban Freight Conference (I-NUF)</b>	METRANS, since 2006	Biennial	Draws international audience to share research & best practices	150-200 researchers, gov't, industry, K-12 guests	Internationally recognized; attendees from 20+ countries
LA Forum on Transportation, Land Use, and Environment	UCLA, since 2008	Annual	1-day educational forum on pressing transportation issues	150-300 public and private sector practitioners	Recent topics: Public/Private TOD, Transport for Climate Action Planning
Lake Arrowhead Symposium on Transportation, Land Use, and Environment	UCLA, since 1991	Annual	Symposium on integrated planning, well-being, and the natural environment	80-100 academics, practitioners, and federal, state, regional and local officials	Recent topics: Post-pandemic future of public transit, Transport implications of affordable housing crisis
National Summit on Transportation and Environmental Sustainability	UCD, since 1988	Biennial	Leading international conference on transportation, energy, and environment	200 experts and leaders in the transportation and energy sectors	Organized under auspices of TRB Energy & Alternative Fuels Committee and the US Climate Change Task Force

Legend: gov't = government; nat'l = national; TOD = Transit-Oriented Development

*Publications, Communications, Media:* PSR will continue its comprehensive communications program, which includes:

- **Transfers Magazine** (continuing): *Transfers* is the semi-annual digital magazine of PSR, edited by a team of senior faculty and skilled copy-editing staff at UCLA. Each article is a carefully crafted summary of published PSR research, translating technical work into jargon-free prose that engages and educates a general audience. Every PSR partner university has published in *Transfers*, either full articles or shorter blogs. *Transfers* won the Communications Initiative Award of Merit from the California APA (2021) and the Los Angeles APA (2022). Since launching in 2018, *Transfers* has published 52 articles and opinion pieces that have attracted about 9,000 page views per publication release month. The UCLA editorial team has also produced short, high-quality videos to complement some articles.
- **PSR News** (continuing): PSR News is published as part of METRANS News, a monthly e-newsletter that features research, student awards and activities, new program initiatives, and summaries of PSR events. METRANS News content is also on the METRANS and PSR websites and disseminated via social media.
- **METRANS on the Move** (continuing): METRANS on the Move (MoM) is a weekly e-newsletter managed and written exclusively by students. MoM was launched in 2015 and now has 3,500 subscribers. Articles feature students from throughout the PSR consortium. MoM also includes upcoming events and employment opportunities.



- *Research Briefs* (continuing): Every PSR research project publishes a 2-page research brief, a short summary of results for non-technical audiences. Briefs are posted on the PSR website and disseminated via email and social media.
- *Website and media* (continuing): The PSR website covers all PSR activities; it includes a complete inventory of projects, reports, conferences, and other events. USC and UCD seminars are offered as webinars; recordings are available via university YouTube channels.

**4.1.2 Drawing on our Diverse Institutions, including Minority Institution Roles:** The PSR consortium is a diverse set of academic institutions, allowing us to customize technology transfer activities to specific audiences or areas. Some activities include the entire consortium (e.g., PSR Congress, DOT symposium, *Transfers*), while others reflect the specializations of the partners (e.g., UCLA Lake Arrowhead Conference, which showcases UCLA's policy outreach; METRANS/CITT Town Hall, which showcases CSULB and USC's relationships with the trade and transportation industry). UH has exceptionally strong ties to agencies in Hawai'i, and regularly advises on resilience and transportation. Each PSR member brings qualifications to support a robust and successful technology transfer program (**Table 16**). Our minority-serving institution partners play a particularly important role. CSULB is the home of LTAP for California, and Pima leads PSR's outreach to tribal communities. UNLV regularly contracts with and advises Nevada's DOT and the Regional Transportation Commission of Southern Nevada.

**Table 16: PSR Partner Qualifications in Technology Transfer**

Partner Qualifications	USC	CSULB	NAU	Pima	UCB	UCD	UCI	UCLA	UH	UNLV
Relationships with state & local governments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Relationships with industry, labor	✓	✓		✓	✓	✓	✓	✓		
Relationships with community	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Relationships with tribal organizations		✓	✓	✓					✓	
Technical assistance	✓	✓	✓		✓	✓	✓	✓	✓	✓
Professional training		✓		✓	✓	✓		✓	✓	
Policy advisement and outreach	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Conference	✓	✓				✓		✓		✓

**4.1.3 PSR Advisory Council:** The current Advisory Council membership is listed in **Table 17**. We will expand the Advisory Council to include members from every Region 9 state



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

DOT and more MPOs. We will also add representatives from the National Indian Justice Center and stakeholder groups across the region (e.g., community organizations, trade and logistics representatives, automakers, transit operators, and technology firms).

**Table 17: Current PSR Advisory Council**

Name	Title	Agency
Lauren Armstrong	Executive Director	Maui Metropolitan Planning Organization
Alvin Au	Former Executive Director	Oahu Metropolitan Planning Organization
Jade Butay	Director	Hawai'i Department of Transportation
Darin Chidsey	Chief Operating Officer	Southern California Assoc. of Governments
Amanda Eaken	Director of Transportation	Natural Resources Defense Council
John Halikowski	Director	Arizona Department of Transportation
Brian Hoeft	Former Director	FAST, RTC of Southern Nevada
Dianne Kresich	Research Center Manager	Arizona Department of Transportation
Farhad Moghimi	Executive Director	Pima Association of Governments
Jon Nouchi	Deputy Director	Honolulu Department of Transportation
Kiana Otsuka	VMT/Active Transport Specialist	Hawai'i State Energy Office
Stephanie Ramirez	Associate State Director	AARP of California
Sondra Rosenberg	Assistant Director, Planning	Nevada Department of Transportation
Jeanie Ward-Waller	Deputy Director Planning & Modal Programs	Caltrans
Dave Wessel	Planning Manager	Flagstaff MPO
Allison Yoh	Executive Officer, Planning & Development	LA Metro

FAST = Freeway & Arterial System of Transportation; RTC = Regional Transportation Commission

**4.1.4 Partnerships Across Sectors:** PSR members have partnerships across all sectors. PSR faculty actively participate in all the major transportation professional associations (TRB, ITE, American Public Transportation Association [APTA], CUTC, etc.) and have research relationships with MPOs, state and local agencies, and tribal organizations. UCD hosts an environmental and social justice fellowship for representatives of community-based organizations, and all our partner universities have strong ties to community groups. PSR partners participate in industry associations (e.g., Harbor Trucking Association, Los Angeles Transportation Club, and Harbor Association of Industry and Commerce). Through our workforce programs, we have affiliations with the university-based National Network for the Transportation Workforce, American Association of Community Colleges, and US DOT Volpe ITS Capacity Building Program.

**4.1.5 Technical Assistance:** PSR will provide technical assistance in the following ways:

***LTAP Program:*** CSULB was recently awarded administration of the California LTAP. This program involves outreach to local agencies across the state to identify transportation training needs while increasing access to existing and new training.

***Applied Research for State and Local Agencies:*** USC has a longstanding contract with LA Metro to maintain the Archived Data Management System as part of LA Metro's RIITS (Regional Integration of Intelligent Transportation Systems) program. NAU regularly works on applied projects for cities such as Phoenix and Scottsdale. UNLV conducts applied projects in Southern Nevada. UH provides technical assistance to the Honolulu and Hawai'i governments and to Pacific Territories. UCI student interns worked with Long Beach Transit (LBT) to determine how to better manage low-demand routes, leading to a Federal Transit Administration grant to LBT to test using micro transit on those routes.



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

We will continue these applied research efforts and consultations. PSR partners USC, CSULB, UCLA, UCI, and NAU have been certified as on-call consultants for the Southern California Association of Governments to provide assistance with the regional transportation plan. Our expanded Advisory Council will be one venue to expand our already robust applied research collaborations.

**4.1.6 Other Technology Transfer Mechanisms, Patenting and Technology Licensing:** At USC, the Stevens Center for Innovation has 19 staff available to assist with patenting, technology licensing, and data and software agreements that involve intellectual property. PSR partners have similar university support for licensing and patenting.

**4.1.7 Peer-Reviewed Publications to Showcase Research Results:** Research projects funded by PSR are expected to result in peer-reviewed publications. As noted in Criterion 2, PSR researchers are prolific and highly cited transportation scholars.

**4.1.8 Academic and Continuing Education Programs:** In Criterion 3, we described: 1) Pima's programs in Logistics and Supply Chain micro-pathways, CDL, and Autonomous Vehicle Driver and Operations Specialist certificates, 2) CSULB's Global Logistics Professional and Marine Terminal Operations Professional certificates, and 3) new training to agency professionals on workforce ramifications of transportation policies.

**4.2 Activities to Benefit Rural and Tribal Communities:** Our community-partnered research model flows from our five-year research collaboration with the SELA Collaborative in Southeast Los Angeles, funded by PSR match funds. This research program includes capacity building and knowledge transfer. Our community-partnered project, "Better data for assessing transportation-environment links in tribal nations," will be designed with the NIJC to meet the needs of tribal communities. UCD has a Transportation Equity and Environmental Justice Advisory Group (TEEJAG) that provides similar links to the community. Technical assistance, training, and education will be integrated into our community-partnered research projects and our broader research program.

**4.3 Contribution to DOT Strategic Goals and KPIs:** We have a broad array of events and a wide network of relationships that will help us implement results that advance DOT Strategic Plan KPIs. **Tables 2 and 3** list the KPIs that our research will advance. Examples (not exhaustive) of ways our technology transfer program will support those KPIs include: *Transfers* and research briefs, both written for general audiences, and the UCD TEEJAG are methods for communicating results relating to equity and climate KPIs (e.g., S/TIP screening; EV charging). I-NUF is a key venue to communicate results related to the KPIs on increasing port capacity and warehousing employment. Our expanded Advisory Council will also support moving results related to KPIs quickly into practice.

#### **4.4 Performance Metrics**

**Table 18: Technology Transfer and Collaboration Performance Metrics**

- |   |
|---|
| 1. Attendance at PSR conferences, other events: a. researchers; b. professionals; c. students |
|---|



- |  |
|--|
| 2. Website and social media traffic, as appropriate: a. sessions; b. downloads; c. views; d. engagements |
| 3. Number and impact of engagements or technical assistance with agencies and communities                |

## **5. Criterion Five. Program Efficacy**

We are exceptionally well positioned to continue to deliver an exemplary regional UTC program. METRANS has successfully led the PSR consortium for the past six years, meeting or exceeding performance metrics and delivering all required reporting on time. Each university has excellent institutional support, and every participant has strong grant management resources (described below.) We build on an exceptional array of educational talent and degree programs, spanning from K-12 to post graduate, and administrative structures that have proven effective in delivering the UTC program collaboratively. The resources of our partners (see **Tables 5 and 6**) allow PSR to leverage a wide array of resources, indicated in part by our successful technology transfer programs and our policy impact (see Criteria 2, 3, and 4.)

**5.1 Institutional Resources:** METRANS is administratively housed in the USC Price School of Public Policy, which administers \$31.5 million (FY 2021) in research funding. METRANS has administered UTC grants and other multi-university research partnerships since its founding in 1998. METRANS has dedicated financial management, grant administration, and student services personnel, all with strong collaborative working relationships across USC and PSR. Each PSR member has a research center that will be the university home for the partnership, with well-established operating processes through centralized accounting and financial services offices that meet all federal requirements. PSR leverages the institutional support from these centers while maintaining clearly distinguishable budgets, financial accounts, and management. This is accomplished by careful management of resources and programs as demonstrated by PSR over the past five years.

**Table 19: Past UTC Program Grant Performance**

Experience Metric	USC PSR Leadership 2016-2022
The institution leading the grant conducted grant activities on time and on budget	yes ✓
The institution leading the grant complied with reporting requirements	yes ✓
Any negative audit findings at the institution related to the grant	none
The grant met any requirement to provide matching funds	fully met ✓

## **5.2 Experience Leading UTC Program**

**Grant:** USC METRANS has led the PSR team since 2016. During that time, we consistently met or exceeded performance metrics. We have consistently met or exceeded the match requirement largely with new funding. Our program management success is indicated in **Table 19**.

**5.3 Management and Oversight:** The Center Director will create a management team to provide oversight for the major activities of PSR (see **Table 21** below). Each university



partner Associate Director is responsible for management and oversight of all PSR activities at their institution. The Director and Associate Directors will continue to meet quarterly to coordinate the research program, the competitive research RFP process, financial management, and the education, workforce, and technology transfer activities. The PSR Advisory Council provides guidance on the overall direction of PSR and will meet at least semi-annually.

**5.3.1 Plan for Overall Management of Fiscal and Technical Activities:**

*Administration of Funds and Oversight:* Financial oversight is provided by the USC Price School business office through personnel who will be tasked directly to the PSR grant. Financial oversight will be in cooperation with the USC Department of Contracts and Grants. The PSR will disperse funds annually to each consortium institution in a lump-sum for all research projects and activities. Each consortium institution center will administer the project funds or disperse the funds to the PI's home department in accordance with each institution's procedures. Quarterly EC meetings (comprised of the Director, Associate Directors, and program management personnel at each institution) will include an agenda item to review the management of funds, including the disbursement of US DOT funds and matching funds from other sources.

*Program Management:* Associate Directors at each member institution will be responsible for implementing activities that support existing graduate programs, including graduate research awards and assistantships, and diversity programs. They will also be responsible for events, communications, and other activities supported by this grant and housed at the partner institutions. The Center Director will monitor these activities, with oversight from the EC.

**5.3.2 Procedures for Tracking and Coordinating Research Efforts:** Research projects will be selected through an open RFP process based on external reviews of proposals, using current successful procedures, as follows.

*The RFP Process:* The RFP, issued annually, solicits proposals within research themes and topics. The eight-page application requires faculty researchers to articulate their project objective, motivation, method, tasks, schedule and deliverables, and qualifications. Proposals are reviewed by external peers (academic researchers), match fund sponsors, and practitioners on the following criteria: relevance to a PSR topic; research significance/quality; student involvement; collaboration across schools and disciplines; qualifications; and prior research performance. Selections are made by the EC, and, for Caltrans-funded projects, in collaboration with Caltrans Division of Research, Innovation and System Information (DRISI). The PSR Associate Director for Research manages the RFP and proposal review process.

*Requirements and Conditions of Funding:* PIs must agree to the requirements and conditions of funding, which are described in an award letter, as a condition of award receipt. The requirements are: 1) quarterly progress reports; 2) draft project report; 3) data management plan, 4) final project report; 5) research brief; and 6) conference presentation. PIs must comply with all the standard requirements on budgets and



**USC • CSU LONG BEACH • NAU • PIMA • UC BERKELEY  
UC DAVIS • UC IRVINE • UCLA • U HAWAII • UNLV**

expenditures, human subjects, and conflict of interest. Updates will be requested for up to three years after the completion of the project to track additional publications and dissemination activities. The PSR Director has authority to withhold funds, impose freezes on accounts, or cancel projects for non-performance. PSR funding is highly competitive, and the prior performance of the faculty PI is a factor in funding decisions.

**Community-Partnered Projects:** We specify two community-partnered projects, which will be peer reviewed, in this proposal. Following the first year of this UTC funding period, the RFP will solicit proposals for community-partnered projects. The RFP, review criteria, and award conditions will be the same as described above, with an additional description of how the university-community research partnership will be managed. Community-partnered projects will have multiple faculty researchers but one faculty PI, who will be responsible for overall management of the research project.

**Graduate Student Research Awards:** Awards will be allocated at the partner university level based on the qualifications of the student and relevance of the proposed research. Criteria for awards will be developed by the Associate Director at each institution. Recipients must work with a designated faculty member on a project approved by that institution's Associate Director, consistent with the PSR's goals and project evaluation criteria. Each project must produce a product (e.g., research report, TRB paper).

**Summary of Overall Research Program Management:** Research program management will include: 1) monitoring the ongoing program for timely progress; 2) reviewing project reports; 3) reviewing budgets and approving expenditures; and 4) assuring that the grant requirements are carried out, including the required postings in Research in Progress (RIP) and Transportation Research Information Services (TRIS) and implementation of the Data Management Plan (DMP). The Associate Director of Administration is responsible for tracking PSR research. File systems are set up to regularly monitor progress and take quick action should PIs not submit progress reports or finish the project in a timely manner. This is consistent with PSR's current practices.

## PART 2: CENTER DIRECTOR AND KEY PERSONNEL

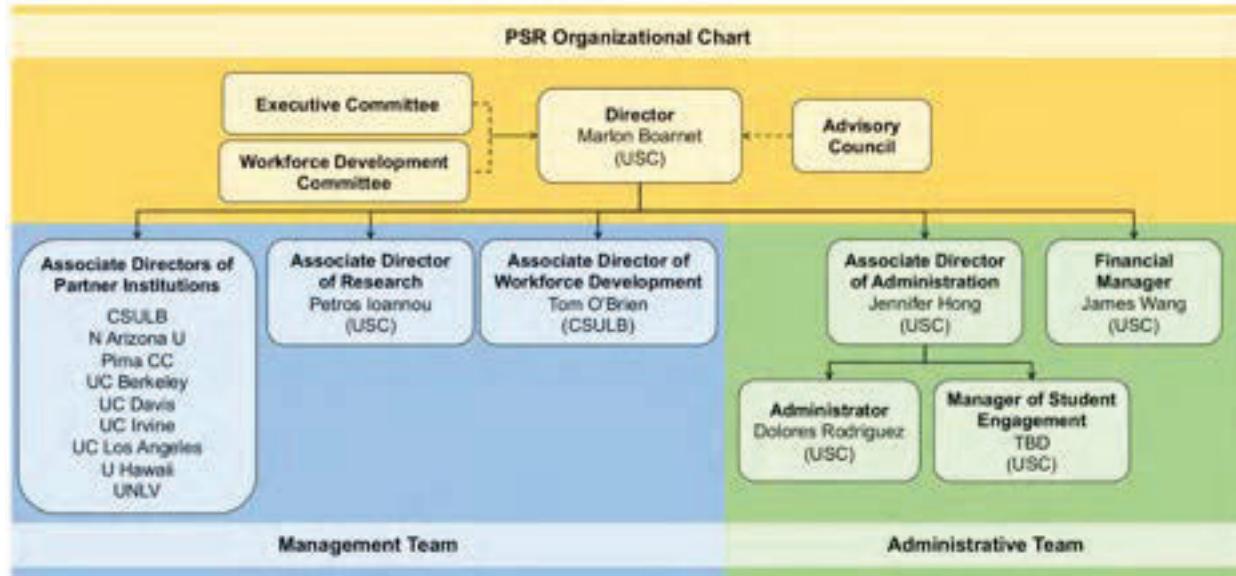
PSR will be housed at the METRANS Transportation Consortium in the USC Sol Price School of Public Policy. It will share some management and administrative resources with METRANS, but will have its own budgeting, financial management, and program management. **Figure 2** presents the organization chart for PSR. It does not include the full array of resources available, such as fundraising.

### **1. Direction and Oversight of Center**

Marlon Boarnet will serve as Director (25% of calendar year time devoted to administration of the center). He will represent the UTC at external meetings and participate in UTC Directors meetings. He will be responsible for leading the Center and overall management, including reporting, financial oversight, match fund solicitation, research, outreach, publications, education, supervision of staff, and project management. He will be responsible for compliance with all UTC program requirements,

will chair meetings of the EC and Advisory Council, and will serve as the point of contact with partner universities.

**Figure 2: PSR Organization Chart**



**Executive Committee:** The Director will be advised by an EC and an external Advisory Council. The EC will be chaired by the Director and include Co-PIs at each partner university (Thomas O'Brien, CSULB; Edward Smaglik, NAU; Ian Roark, Pima; Daniel Rodriguez, UCB; Susan Handy, UCD; Stephen Ritchie, UCI; Brian Taylor; UCLA, Karl Kim, UH; and Shashi Nambisan, UNLV) and former PSR Director and USC faculty member, Genevieve Giuliano. The EC will meet quarterly by phone or video conference and less often in person. The EC advises on all aspects of PSR activities; it develops the research agenda consistent with the research themes and topics outlined in this proposal, participates in the project selection, and reviews and approves workforce development and technology transfer projects. The EC will review the status of community-partnered projects and advise the Director on next steps that evolve from those projects.

**Table 20: Composition of PSR Advisory Council**

The Director (or designee) from each of the four State DOTs in Region 9
The Executive Director (or designee) from each MPO in Region 9 serving areas of >1 million in population
The Executive Director (or designee) from at least two MPOs serving a metropolitan area <1 million in population
Representatives from at least one US Territory and at least one Tribal Government in Region 9
Representatives from the National Indian Justice Center, the SELA Collaborative, and other community organizations
Representatives from other transportation stakeholder organizations in the public, private, and not-for-profit sectors may be included when their presence complements coverage of the mission and scope of the center

**Workforce Development Committee:** Workforce development, training, and professional education will be guided by the Workforce Development Committee (WD). The WD will be chaired by Thomas O'Brien, with members Tyler Reeb (CSULB), Karl Kim (UH), and Ian Roark (Pima). Each WD member leads a training or professional development unit. The WD will coordinate the workforce development and training activities described in Criteria 3 and 4, and will provide semi-annual progress reports to



the Director and EC. The WD will also prepare an annual workforce development program for review/approval by the EC.

**Advisory Council:** PSR will expand the current Advisory Council. Composition of that expanded Advisory Council is given in **Table 20**. The Advisory Council will meet at least twice per year to provide guidance on: 1) pressing research problems facing member agencies; 2) themes to be addressed at the PSR Annual Congress; and 3) workforce and training requirements of the member agencies and their client or constituent entities.

## **2. Management and Administrative Team**

**Table 21: PSR Management & Administrative Team Members & Responsibilities**

Position	Responsibilities
Director, Marlon Boarnet (25%)	Oversight and management of all PSR operations. Responsibility for grant administration and reporting. Convene Advisory Council, EC.
Associate Director, Administration, Jennifer Hong (70%)	Manage day-to-day activities of the center, coordinate partner activities, liaison to Advisory Council and external constituents. Manage progress reports and final reports for research projects, write PSR semi-annual reports, collect and analyze data on performance metrics.
Manager of Student Engagement, TBD (50%)	Manage the center's student engagement and outreach programs, including mentoring, K-12, Transportation Pathways, and other programs.
Associate Director, Workforce Development, Tom O'Brien (15%)	Manage and oversee PSR workforce programs, professional education and training programs, events, media and communications
Associate Director, Research, Petros Ioannou (4%)	Manage RFP process and proposal peer review. Present review results and preliminary recommendations to EC, which selects projects for funding.
Center Financial Manager, James Wang (50%)	Manage budget preparation, prepare subcontracts, monitor accounts, and provide all financial reporting.
PSR Administrative Assistant, Dolores Rodriguez (50%)	Provide administrative support for human resources, conference events, travel, proposal review, and logistical support for PSR-related activities.

## **3. Qualifications of Management Team**

PSR leaders have an excellent record leading multi-party consortia, educating graduate and undergraduate students, and engaging decision makers, government, and industry. Leadership accomplishments are detailed in Criterion 2. Director Marlon Boarnet is a professor of urban planning in the USC Price School of Public Policy. He is a national leader, having served as department chair and vice-dean at USC and as president of ACSP. Under his leadership, the Price School developed the first online executive urban planning degree in the US. Boarnet developed an innovative pre-doctoral summer workshop for underrepresented students, now an annual program of ACSP, which has placed over half of its participants into PhD programs. Boarnet is among the 25 most highly cited planning scholars in the US, and he has managed millions of dollars in research funding. He has served on the METRANS EC since 2012. The Associate Directors are all experienced leaders and internationally recognized in their respective fields; all are currently directors of research centers or institutes, and most have experience managing large, multi-institution projects/programs. See CVs of the Director, Associate Directors, and key personnel in Appendix B for more details.

#### 4. Required Appendices

##### Appendix A: Enrollment Information for Minority-Serving Institutions

###### Institution: California State University Long Beach (CSULB)

Term: Fall 2021 (most recent data available)

Total student count: 40,253

Percentage minorities (as defined by USDOT NOFO): 53.9%

Demographic breakdown	Enrollment number	Percentage of total enrollment
American Indian or Alaskan Native	37	0.1%
Black or African American	1,513	3.8%
Hispanic/Latino	18,385	45.7%
Native Hawaiian or Pacific Islander	90	0.2%
Two or More Races	1,691	4.2%
Total Percentage Minority	21,716	53.9%
Race and Ethnicity Unknown	997	2.5%
Asian	8,181	20.3%
White	6,858	17.0%
International Student	2,501	6.2%
<b>Total</b>	<b>40,253</b>	<b>100%</b>

###### Institution: Pima Community College (Pima)

Term: Spring 2022

Total student count: 15,186

Percentage minorities (as defined by USDOT NOFO): 56.8%

Demographic Breakdown	Enrollment number	Percentage of total enrollment
American Indian or Alaskan Native	271	1.8%
Black or African American	799	5.3%
Hispanic/Latino	7,083	46.6%
Native Hawaiian or Pacific Islander	47	0.3%
Two or More Races	433	2.9%
Total Percentage Minority	<b>8,633</b>	<b>56.8%</b>
Race and Ethnicity Unknown	312	2.1%
Asian	510	3.4%
White	5,731	37.7%
<b>Total</b>	<b>15,186</b>	<b>100%</b>

###### Institution: University of Nevada Las Vegas (UNLV)

Term: Fall 2021 (most recent data available)

Total student count: 30,703

Percentage minorities (as defined by USDOT NOFO): 51.4%

Demographic breakdown	Enrollment number	Percentage of total enrollment
American Indian or Alaskan Native	76	0.2%
Black or African American	2,637	8.6%
Hispanic/Latino	9,475	30.9%
Native Hawaiian or Pacific Islander	241	0.8%
Two or More Races	3,348	10.9%
Total Percentage Minority	<b>15,777</b>	<b>51.4%</b>
Race and Ethnicity Unknown	370	1.2%
Asian	4,761	15.5%
White	8,976	29.2%
International Student	819	2.7%
<b>Total</b>	<b>30,703</b>	<b>100%</b>

## Appendix B: Curriculum Vitae for Center Director and Key Personnel

**Marlon G. Boarnet**, Center Director  
Professor, Sol Price School of Public Policy  
Director, METRANS Transportation Consortium  
University of Southern California  
Los Angeles, CA | [boarnet@usc.edu](mailto:boarnet@usc.edu) | 213-740-3696

### **Education:**

Rice University, Physics, B.A. 1984  
Princeton University, Public Policy, MPA 1988, M.A. 1990, Ph.D. 1992

### **Appointments:**

*University of Southern California*  
Professor of Public Policy, 2012 – present.  
Director, METRANS Transportation Consortium, July 1, 2022 – present  
Chair, Dept. of Urban Planning and Spatial Analysis, Jan. 1, 2016 – June 30, 2022  
Vice/Senior Associate Dean for Academic Affairs, Price School, 2014-2015  
Director of Graduate Programs in Planning, 2012 – 2015

*University of California, Irvine, 1991 – 2011*

Professor of Planning, Policy, and Design and of Economics, 2004 – 2011  
Associate Professor of Planning, Policy, and Design and Economics, 1998-2004  
Assistant Professor (acting asst. prof., 1991) Urban and Regional Planning, 1991-1998  
School of Social Ecology Faculty Chair, 2009 - 2011  
Department Chair, Department of Planning, Policy, and Design, Jan., 2003 – Dec., 2006  
Director of Masters and Ph.D. Programs in Urban and Regional Planning, 1999-2002

### **Recent Publications:**

- (i) Publications most closely related to proposal project
  - J. Huang and M. Boarnet, “Analyzing the Potential Impact of Docked Bikeshare on Transit First-Last Mile Accessibility in East Los Angeles,” *Transport Findings*, 2022.
  - M. Boarnet, R. Bostic, S. Rodnyansky, E. Burinskiy, A. Eisenlohr, H. Jamme, R. Santiago-Bartolomei, “Do High Income Households Reduce Driving More When Living Near Rail Transit?” *Transportation Research Part D: Transport and the Environment*, Feb., 2020.
  - M. Boarnet and X. Wang, “Urban Spatial Structure and the Potential for Vehicle Miles Traveled Reduction: The Effects of Accessibility to Jobs Within and Beyond Employment Sub-Centers,” *Annals of Regional Science*, vol. 62, no. 2, pp. 381-404, 2019.
  - H-P Hsu, M. Boarnet, and D. Houston, “Gender and Transit Use: The Influence of Environmental Beliefs and Safety Concerns,” *Transportation Research Record: The Journal of the Transportation Research Board*, vol. 2673, issue 4, pp. 327-338, 2019.
  - M. Boarnet, R. Bostic, A. Eisenlohr, S. Rodnyansky, R. Santiago-Bartolome, H. Jamme, 2018, “The Joint Effects of Income, Vehicle Technology, and Rail Transit Access on

- Greenhouse Gas Emissions," *Transportation Research Record: The Journal of the Transportation Research Board*, 2018, vol. 2672, no. 24, pp. 75-86.
- M. Boarnet, G. Giuliano, Y. Hou, and E-J Shin, "First/Last Mile Transit Access as an Equity Planning Issue" *Transportation Research A, Policy and Practice*, vol. 103, issue C, 296-310.
- M. Boarnet, A. Hong, and R. Santiago-Bartolomei, "Urban Spatial Structure, Employment Subcenters, and Freight Travel," *Journal of Transport Geography*, 2017, vol. 60, pp. 267-276.
- M. Boarnet, X. Wang, and D. Houston, "Can New Light Rail Reduce Personal Vehicle Carbon Emissions? A Before-After, Experimental-Control Evaluation in Los Angeles," *Journal of Regional Science*, 2017, 57(3): pp. 523-539.

(ii) Other significant publications

- H. Zhong, W. Li, M. Boarnet, "A Two-Dimensional Propensity Score Matching Method for Longitudinal Quasi-Experimental Studies: A Focus on Travel Behavior and the Built Environment," *Environment and Planning B: Urban Analytics and City Science*, 2020.
- M. Boarnet and H-P Hsu, "The Gender Gap in Non-Work Travel: The Relative Roles of Income Earning Potential and Land Use," *Journal of Urban Economics*, 2015, vol. 86, pp. 111-127.
- M. Boarnet, "Longer View: A Broader Context for Land Use and Travel Behavior, and a Research Agenda." *Journal of the American Planning Association*, volume 77, number 3, Summer, 2011, pp. 197-213.
- M. Boarnet, D. Houston, R. Edwards, M. Princevac, G. Ferguson, H. Pan, and C. Bartolome, "Fine Particulate Concentrations on Sidewalks in Five Southern California Cities," *Atmospheric Environment*, volume 45, issue 24, August 2011, Pages 4025-4033.

### **Notable Synergistic/Service Activities**

President, Association of Collegiate Schools of Planning Governing Board (elected), Oct. 2019 – Oct., 2021.

Robert Biller Outstanding Faculty Member Award, USC Sol Price School, 2019

National University of Singapore (NUS) Society visiting professorship, 2017-2018

Fellow of the Regional Science Association International, elected 2017

Fellow of the Weimer School of the Homer Hoyt Institute of Real Estate, elected 2014

Managing Co-Editor, *Journal of Regional Science*, 2002 – 2010, co-editor, 2010 – 2014

Editorial Board Member (past and present): *Journal of Regional Science*; *Papers in Regional Science*; *Journal of the American Planning Association*; *Journal of Planning Literature*; *Journal of Transport and Land Use*; *Transport Policy*

Transportation Research Board Committee Memberships (past and present):

*Transportation Economics*, *Transportation and Land Development*, *Transportation and Economic Development*, *Economic Development and Land Use*

National Academy of Sciences/National Research Council Committee on Relationships Among Development Patterns, Vehicle Miles Traveled, and Energy Consumption, 2007 – 2009

**GENEVIEVE GIULIANO, PhD**  
Sol Price School of Public Policy  
University of Southern California  
Los Angeles, CA 90089

**Education:**

Doctor of Philosophy, Social Sciences, University of California, Irvine, 1980.  
Bachelor of Arts, History, University of California, Berkeley, 1965.

**Current Position:**

Margaret and John Ferraro Chair in Effective Local Government, 2009 –  
Senior Associate Dean, Research and Technology, 2005 – 2015  
Director, METRANS Transportation Consortium, 2001 – 2022  
Professor, Urban Planning and Spatial Analysis, 1997 –  
Associate Professor, Urban Planning, 1998 –

**Recent Professional Appointments:**

Member, California Freight Advisory Committee, 2017  
Member, National Freight Advisory Committee, 2013 – 2016  
Former Member, Eno Transportation Foundation Board of Advisors, 2012 – 2015  
Former Chair, Transportation Research Board Executive Committee  
Former Chair, Council of University Transportation Centers  
Conference Chair, International Urban Freight Conference 2006, 2007, 2009, 2011,  
2013, 2015, 2017, 2019, 2022  
Member, various National Academies of Sciences policy study committees; most  
recently, Committee on the Future of the Interstate Highway System

**Recent Publications:**

Books

Rodrigue, J-P, A. Conway, L. Dablanc, G. Giuliano, S. Lee, T. O'Brien, eds (2020) City  
Logistics: Concepts, Policy and Practice. Online open access book, available at  
<https://globalcitylogistics.org/>.

Browne, M., S. Behrends, J. Woxenius, G. Giuliano, and J. Holguin-Veras, eds, (2020)  
Urban Logistics: Management, Policy and Innovation in a Rapidly Changing  
Environment. London: Kogan Page Ltd.

Giuliano, G. and S. Hanson, eds., (2017) *The Geography of Urban Transportation*,  
fourth edition. New York: Guilford Press.

Journal articles

Giuliano, G. and Y. Lu (2021) “Analyzing traffic impacts of planned major events”.  
*Transportation Research Record*. <https://doi.org/10.1177/0361198121998710>.  
Winner of best paper prize, TRB Committee ACP10

Giuliano, G. M. Dessouky, S. Dexter, J. Fang, S. Hu. M. Miller (2021) Heavy duty  
trucks: The challenge of getting to zero, *Transportation Research D*, 93 102742.  
<https://doi.org/10.1016/j.trd.2021.102742>.

- Giuliano, G., Y. Hou, S. Kang and E-J Shin (2021) Polycentricity and the evolution of metropolitan spatial structure, *Growth and Change*,  
<https://doi.org/10.1111/grow.12599>.
- Purdon, M., Witcover, J., Murphy, C., Ziaja, S., Winfield, M., Giuliano, G., Séguin, C., Kaiser, C., Papy, J., & Fulton, L. (2021). Climate and transportation policy sequencing in California and Quebec. *Review of Policy Research*, 00, 1– 35.  
<https://doi.org/10.1111/ropr.12440>
- Lu, Y.. R. Habre, G. Giuliano (2021) Estimating hourly PM2.5 concentration at the neighborhood scale using a low-cost air sensor network: A Los Angeles case study. *Environmental Research*, 110653,  
<https://doi.org/10.1016/j.envres.2020.110653>.
- Giuliano, G. and S. Chakrabarti (2020) Analyzing intra-metropolitan variation in highway traffic performance in Los Angeles using archived real-time data, *Transportation Planning and Technology*, 43:8, 751-770, DOI: 10.1080/03081060.2020.1828931
- Giuliano G., S. Kang, and Q. Yuan (2019) “Agglomeration economies and evolving urban form,” *The Annals of Regional Science*, DOI 10.1007/s00168-019-00957-4
- Giuliano, G. and S. Kang (2018) “Spatial dynamics of the logistics industry: Evidence from California,” *Journal of Transport Geography*, 66, 248-258
- Schuetz, J., G. Giuliano, E-J Shin (2018) “Is Los Angeles becoming transit oriented?”, *Cityscape* 20(1), 167-190.
- Schuetz, J., G. Giuliano, E-J Shin (2018) Does zoning help or hinder transit-oriented (re)development?, *Urban Studies*, 55(8), 1672-1689.
- Boarnet, M., G. Giuliano, Y. Hou and E-J Shin (2017) “First/last mile transit access as an equity issue,” *Transportation Research A*. 103, 296-310.

### Awards:

- 2022 Elected Fellow, Regional Science Association International
- 2021 TRB Regional Transportation Systems Management and Operations Committee (ACP10) best paper award
- 2019 Domenick Miretti Award, Contribution to Industry and Educational Partnerships
- 2017 Walter Isard Award, Distinguished Scholarship Contribution in Regional Science, North American Regional Science Association
- 2016 Chester Rapkin Award, Best Paper in *Journal of Planning Education and Research*
- 2013 Council of University Transportation Centers Distinguished Contribution to Transportation Research and Education
- 2012 Transportation Research Forum Distinguished Transportation Research Award
- 2006 Thomas B. Deen Distinguished Lectureship
- 2005 W.N. Carey Jr. Distinguished Service Award.

**SUSAN L. HANDY, PhD**  
Department of Environmental Science and Policy  
University of California at Davis  
Davis, CA 95616

**Education:**

Doctor of Philosophy, City and Regional Planning, University of California, Berkeley, 1992.  
Master of Science, Resource Planning Program, Civil Engineering, Stanford University, 1987.  
Bachelor of Science and Engineering, Engineering and Management Systems Program, Civil Engineering, Princeton University, 1984.

**Current Position:**

Distinguished Professor, Department of Environmental Science and Policy, University of California, Davis.  
Director, National Center for Sustainable Transportation, 2013 –  
Chair, Transportation Technology and Policy Graduate Group, 2015 –  
Chair, Department of Environmental Science and Policy, 2011 – 2016  
Director, Sustainable Transportation Center, 2006 – 2012  
Professor, 2006 – 2021  
Associate Professor, 2002 – 2006

**Recent Professional Appointments:**

Associate Editor, *Transportation Research Record*, since 2019.  
Member, Editorial Board, *Transport Reviews* (since 2013), *Travel Behavior & Society* (since 2013), *Transport Policy* (since 2011), *Journal of Transportation and Land Use* (since 2007), *Journal of Planning Education and Research* (since 2006), *International Journal of Behavioral Nutrition and Physical Activity* (since 2004), *Transportation Research D* (since 1996), *Journal of the American Planning Association* (2001 - 2019), *Journal of Physical Activity and Health* (2006-2011), *American Journal of Health Promotion* (2004-2009).  
Member, Executive Board, World Society on Transportation & Land Use Research, since 2011.  
Associate Editor, *Journal of Transport and Health*, 2013-2019.

**Recent Publications:**

Handy, S. L., and D.T. Fitch. 2022. Can an e-bike share system increase awareness and consideration of e-bikes as a commute mode? Results from a natural experiment. *International Journal of Sustainable Transportation*, 16(1), 34-44.  
Fitch, D. T., J. Carlen and S.L. Handy. 2022. What makes bicyclists comfortable? Insights from a visual preference survey of casual and prospective bicyclists. *Transportation research part A: policy and practice*, 155, 434-449.  
Hough, J., and S. Handy. 2022. "Public Transportation Ridership Patterns: Past, Present, and Possible Future Trends," in P. Layne and J.S. Tietjen, eds, *Women in Infrastructure* (New York: Springer), pp. 155-170.

- Handy, S. 2021. "Transportation, Land Use, and Health," in N.D. Botchway, A. Dannenberg, and H. Frumkin, eds., *Making Healthy Places* (Washington DC: Island Press), pp. 186-201.
- Fukushige, T., D.T. Fitch and S. Handy. 2021. Factors influencing dock-less E-bike-share mode substitution: Evidence from Sacramento, California. *Transportation Research Part D: Transport and Environment*, 99, 102990.
- Fukushige, T., and S. Handy. 2021. Who are the potential bicyclists? Evidence from the California Millennials Dataset 2015. *International Journal of Sustainable Transportation*, 1-11.
- Handy, S., A. Wang, E. Jacobson and C. Thigpen. 2021. What do teenagers think about driving? Insights from a bicycling-oriented community in the auto-dependent United States. *Transportation research interdisciplinary perspectives*, 11, 100422.
- Volker, J., and S. Handy. 2021. Economic impacts on local businesses of investments in bicycle and pedestrian infrastructure: a review of the evidence. *Transport Reviews*. DOI: 10.1080/01441647.2021.1912849
- Heinen, E. and S. Handy. 2021. "Bicycle Programs and Policies," in R. Buehler and J. Pucher, eds., *The Future of City Cycling* (Cambridge: MIT Press), pp. 119-136.
- McDonald, M., E. Kontou, and S. Handy. 2021. "Children and Cycling," in R. Buehler and J. Pucher, eds., *The Future of City Cycling* (Cambridge: MIT Press), pp. 219-236.
- Handy, S. L. and D.T. Fitch. 2020. Can an e-bike share system increase awareness and consideration of e-bikes as a commute mode? Results from a natural experiment. *International Journal of Sustainable Transportation*, 1-16. DOI: 10.1080/15568318.2020.1847370.
- Fitch, D., H. Mohiuddin and S. Handy. 2020. Electric Bike-share in the Sacramento Region is Replacing Car Trips and Supporting More Favorable Attitudes Towards Bicycling. *Sustainability*, 13, 368. DOI: 10.3390/su13010368.
- Volker, J., A. Lee, and S. Handy. 2020. Induced Vehicle Travel in the Environmental Review Process. *Transportation Research Record*. DOI: 10.1177/0361198120923365
- Handy, S. and A. Lee. 2020. What is it about bicycling? Evidence from Davis, CA. *Travel Behavior & Society*, 20, 348-357.
- Janke, J., C.G. Thigpen, and S. Handy. 2020. Examining the effect of life course events on modality type and the moderating influence of life stage. *Transportation*, 1-36.
- Fitch, D. T., J. Sharpnack, and S. Handy. 2020. Psychological stress of bicycling with traffic: examining heart rate variability of bicyclists in natural urban environments. *Transportation research part F: traffic psychology and behaviour*, 70, 81-97.
- Fitch, D. T., and S.L. Handy, 2020. Road environments and bicyclist route choice: The cases of Davis and San Francisco, CA. *Journal of Transport Geography*, 85, 102705.
- Handy, S. 2020. "Why sustainable transport cannot ignore land use," in C. Curtis, ed., *Handbook of Sustainable Transport* (Cheltingham, UK: Edward Elgar), pp. 220-229.
- Handy, S. 2020. "Making US cities pedestrian-and bicycle-friendly," in E. Deakin, ed., *Transportation, Land Use, and Environmental Planning* (Amsterdam: Elsevier), pp. 169-187.

**PETROS A. IOANNOU, PhD**

A.V. "Bal" Balakrishnan Chair, Professor of Electrical and Computer Engineering, Aerospace and Mechanical Engineering, and Industrial and Systems Engineering  
University of Southern California  
Los Angeles, CA

**Education:**

University of London, London, England, Mechanical Engineering, BSc, 1978

University of Illinois, Urbana, Illinois, Mechanical Engineering, MS, 1980

University of Illinois, Urbana, Illinois, Electrical Engineering, PhD, 1982

**Current Position:**

A.V. 'Bal' Balakrishnan Chair Professor, Viterbi School of Engineering, University of Southern California, 2016–

Professor, University of Southern California (USC), Professor of Electrical Engineering Systems, 1992–

Courtesy Appointments with the Department of Aerospace and Mechanical Engineering and Industrial System Engineering, 2006–

Director for the Center for Advanced Transportation Technologies at USC, 1992–

Associate Director for Research of the University Transportation Center METRANS, 2006–

Director of the Masters Program in Financial Engineering at USC, 2008–

Associate Professor, University of Southern California (USC), Professor of Electrical Engineering Systems, 1987-1992

Assistant Professor, University of Southern California (USC), Professor of Electrical Engineering Systems, 1982-1987

**Recent Professional Appointments:**

Vice President for Membership Activities IEEE Intelligent Transportation Systems, Jan. 2022-present

Vice President for Publications IEEE Intelligent Transportation Systems 2018-2021

Editor in Chief of the IEEE Transactions on Intelligent Transportation Systems, 2015 to 2018

General Chair of IEEE Intelligent Vehicles Symposium, June 2017, Redondo Beach, CA

Associate Editor of IMA Journal of Mathematical Control and Information 2012-2017

**Recent Publications:**

P.A. Ioannou 'Intelligent Freight Transportation', CRC Press, 2008

P.A. Ioannou, Automated Highway Systems, Plenum, 1997

P. A. Ioannou and A. Pitsillides Modelling and Control of Complex Systems, CRC Press, 2007

H. Jula, E. Kosmatopoulos and P. Ioannou, "Collision Avoidance Analysis for Lane Changing and Merging", IEEE Transactions on Vehicular Technology, Vol. 49, No.6, November 2000 pp 2295-2308

A. Kanaris, E. Kosmatopoulos and P. Ioannou "Strategies and Spacing Requirements for Lane Changing and Merging in Automated Highway Systems" IEEE

- Transactions on Vehicular Technology, Vol. 50, No. 6, November 2001, pp 1568-1582
- Bose and P. Ioannou, " Mixed Manual/Semi-Automated Traffic: A Macroscopic Analysis" Transportation Research Part C 11 pp 439-462, ELSEVIER 2003
- P. Ioannou and M. Stefanovic "Evaluation of the ACC Vehicles in Mixed Traffic: Lane Change Effects and Sensitivity Analysis" IEEE Transactions on Intelligent Transportation Systems Vol. 6, No.1 March 2005, pp 79-90
- J. Zhang and P.A. Ioannou, "Longitudinal Control of Heavy Trucks in Mixed Traffic: Environmental and Fuel Economy Considerations," IEEE Transactions on Intelligent Transportation Systems, vol. 7, no. 1, pp. 92-104, 2006.
- Vadim Butakov and Petros Ioannou "Driver/Vehicle Response Diagnostic System for the Vehicle Following Case," IEEE Transactions on Intelligent Transportation Systems, Vol.15, no.5, Oct. 2014, pp. 1947-1957
- Yihang Zhang, Petros A. Ioannou, "Coordinated Variable Speed Limit, Ramp Metering and Lane Change Control of Highway Traffic", In IFAC-Papers OnLine, Volume 50, Issue 1, 2017, Pages 5307-5312
- Yanbo Zhao, Petros A. Ioannou and Maged M. Dessouky, 'Dynamic Multimodal Freight Routing Using a Co-simulation Optimization Approach,' in IEEE Transactions on Intelligent Transportation Systems, 2018.

#### **Selected Honors:**

- 2022 Member of the National Academy of Engineering
- 2022 Member of the Academia Europaea,
- 2019 User-Inspired Research Award *In recognition and Appreciation of Excellence*, USC Viterbi School of Engineering
- 2018 IEEE Lifetime Fellow
- 2017 Fellow of AAAS
- 2017 Transition to Practice Award by IEEE Control System Society
- 2016 IEEE Transportation Technologies Field Award
- 2016 Senior Research Award, by the Viterbi School of Engineering, USC
- 2012 IEEE Intelligent Transportation Systems Society (ITSS) Outstanding Research
- 2009 Institute of Engineering Technologies (IET) Heaviside Medal for Achievem Control
- 2009 IEEE ITSS Outstanding ITS Application Award,
- 2006 Fellow of the International Federation of Automatic Control since 2006
- 1992 Fellow of the Institute of Electrical and Electronic
- 1985 1985 Presidential Young Investigator Award

**KARL KIM, PhD**

Department of Urban and Regional Planning  
University of Hawai'i at Manoa  
Honolulu, HI 96822

**Education:**

Doctor of Philosophy, Urban Studies and Planning, Massachusetts Institute of Technology, 1987.  
Bachelor of Arts, Demography, Brown University, 1979.

**Current Position:**

Professor of Urban and Regional Planning, Department of Urban and Regional Planning, University of Hawaii at Manoa, 1997 –  
Director, Graduate Certificate, Disaster Management and Humanitarian Assistance, 2007 –  
Executive Director, National Disaster Preparedness Training Center, 2009 –  
Chair, Urban and Regional Planning, 2005 – 2009  
Vice Chancellor for Academic Affairs, 2000 – 2004  
Associate Professor of Urban and Regional Planning, 1991 – 1997  
Assistant Professor of Urban and Regional Planning, 1985 – 1992

**Recent Professional Appointments:**

Associate Editor, *Transportation Research Record*, since 2019.  
Member, Editorial Board, *Transport Reviews* (since 2013), *Travel Behavior & Society* (since 2013), *Transport Policy* (since 2011), *Journal of Transportation and Land Use* (since 2007), *Journal of Planning Education and Research* (since 2006), *International Journal of Behavioral Nutrition and Physical Activity* (since 2004), *Transportation Research D* (since 1996), *Journal of the American Planning Association* (2001 - 2019), *Journal of Physical Activity and Health* (2006-2011), *American Journal of Health Promotion* (2004-2009).  
Member, Executive Board, World Society on Transportation & Land Use Research, since 2011.  
Associate Editor, *Journal of Transport and Health*, 2013-2019.

**Recent Publications:**

Handy, S. L., and D.T. Fitch. 2022. Can an e-bike share system increase awareness and consideration of e-bikes as a commute mode? Results from a natural experiment. *International Journal of Sustainable Transportation*, 16(1), 34-44.  
Kim, K., Kaviari, F., Pant, P., Yamashita, E. (2022) An Agent-Based Model of Short-Notice Tsunami Evacuation in Waikiki, Hawaii. *Transportation Research Part D: Transport and Environment*. Vol. 105, 103239.  
Kim, K. (2022) Ten Takeaways from the COVID-19 Pandemic for Transportation Planners. *Transportation Research Record*, <https://doi.org/10.1177%2F03611981221090515>.  
Kim, K. (2021) 9/11: Transformation of Transportation Research. *Transportation Research Interdisciplinary Perspectives*. Vol 12, 100472.

- Kim, K., Porro, R., Ghimire, J., Ramirez Durand, L., Chaparro Serrano, R., Gonzalez, B., Yamashita, E. (2021). Analysis of Pre- and Post-Disaster Management and Recovery in Puerto Rico from Hurricane Maria. *Journal of Emergency Management*, Vol. 19, No. 8. 235-253.
- Kim, K., Chowdhury, R., Pant, P., Yamashita, E., and Ghimire, J. (2021) Assessment of ENSO Risks to Support Transportation Resilience. *Progress in Disaster Science*. Vol. 12, 100196.
- Houghton, B.F., Cockshell, W.A., Gregg, C.E., Walker, B.H., Kim, K., Tisdale, C.M., Yamashita, E. (2021) Land, Lava, and Disaster Create a Social Dilemma after the 2018 Eruption of Kilauea Volcano. *Nature Communications*, 12(1223), <https://doi.org/10.1038/s41467-021-21455-2>.
- Kim, K., Yamashita, E., and Ghimire, J. (2021). Pausing the Pandemic: Understanding and Managing Traveler and Community Spread of COVID-19 in Hawaii. *Transportation Research Record*. <https://doi.org/10.1177/03611981211058428>.
- Kim, K., Yamashita, E., and Ghimire, J. (2021). Factors Associated with Differences in Initial Preparedness and Response: Findings from a Nationwide Survey in the United States. *Transportation Research Interdisciplinary Perspectives*, Vol 11, 100430.
- Kim, K., Wolshon, B., Pant, P., Yamashita, E., and Ghimire, J. (2020). Assessment of Evacuation Training Needs: Targeting Instruction to Meet the Requirements of Local Communities and Agencies. *Journal of Emergency Management*, Vol. 18, No. 6, 475-487.

**SHASHI S. NAMBISAN, PhD**

Department of Civil & Environmental Engineering & Construction; Transportation Research Center; College of Engineering  
University of Nevada at Las Vegas  
Las Vegas, NV 89154

**Education:**

Doctor of Philosophy, Civil Engineering (Transportation), University of California, Berkeley, 1989.  
Master of Science, Civil Engineering (Transportation), Virginia Tech, 1985.  
Bachelor of Technology, Civil Engineering, Indian Institute of Technology, Madras 1984.

**Current Position:**

Distinguished Professor, Department of Environmental Science and Policy, University of California, Davis.  
Director, National Center for Sustainable Transportation, 2013 –  
Chair, Transportation Technology and Policy Graduate Group, 2015 –  
Chair, Department of Environmental Science and Policy, 2011 – 2016  
Director, Sustainable Transportation Center, 2006 – 2012  
Professor, 2006 – 2021  
Associate Professor, 2002 – 2006

**Recent Professional Appointments:**

Associate Editor, *Transportation Research Record*, since 2019.  
Member, Editorial Board, *Transport Reviews* (since 2013), *Travel Behavior & Society* (since 2013), *Transport Policy* (since 2011), *Journal of Transportation and Land Use* (since 2007), *Journal of Planning Education and Research* (since 2006), *International Journal of Behavioral Nutrition and Physical Activity* (since 2004), *Transportation Research D* (since 1996), *Journal of the American Planning Association* (2001 - 2019), *Journal of Physical Activity and Health* (2006-2011), *American Journal of Health Promotion* (2004-2009).  
Member, Executive Board, World Society on Transportation & Land Use Research, since 2011.  
Associate Editor, *Journal of Transport and Health*, 2013-2019.

**Recent Publications:**

Handy, S. L., and D.T. Fitch. 2022. Can an e-bike share system increase awareness and consideration of e-bikes as a commute mode? Results from a natural experiment. *International Journal of Sustainable Transportation*, 16(1), 34-44.  
Fitch, D. T., J. Carlen and S.L. Handy. 2022. What makes bicyclists comfortable? Insights from a visual preference survey of casual and prospective bicyclists. *Transportation research part A: policy and practice*, 155, 434-449.  
Hough, J., and S. Handy. 2022. "Public Transportation Ridership Patterns: Past, Present, and Possible Future Trends," in P. Layne and J.S. Tietjen, eds, *Women in Infrastructure* (New York: Springer), pp. 155-170.

- Handy, S. 2021. "Transportation, Land Use, and Health," in N.D. Botchway, A. Dannenberg, and H. Frumkin, eds., *Making Healthy Places* (Washington DC: Island Press), pp. 186-201.
- Fukushige, T., D.T. Fitch and S. Handy. 2021. Factors influencing dock-less E-bike-share mode substitution: Evidence from Sacramento, California. *Transportation Research Part D: Transport and Environment*, 99, 102990.
- Fukushige, T., and S. Handy. 2021. Who are the potential bicyclists? Evidence from the California Millennials Dataset 2015. *International Journal of Sustainable Transportation*, 1-11.
- Handy, S., A. Wang, E. Jacobson and C. Thigpen. 2021. What do teenagers think about driving? Insights from a bicycling-oriented community in the auto-dependent United States. *Transportation research interdisciplinary perspectives*, 11, 100422.
- Volker, J., and S. Handy. 2021. Economic impacts on local businesses of investments in bicycle and pedestrian infrastructure: a review of the evidence. *Transport Reviews*. DOI: 10.1080/01441647.2021.1912849
- Heinen, E. and S. Handy. 2021. "Bicycle Programs and Policies," in R. Buehler and J. Pucher, eds., *The Future of City Cycling* (Cambridge: MIT Press), pp. 119-136.
- McDonald, M., E. Kontou, and S. Handy. 2021. "Children and Cycling," in R. Buehler and J. Pucher, eds., *The Future of City Cycling* (Cambridge: MIT Press), pp. 219-236.
- Handy, S. L. and D.T. Fitch. 2020. Can an e-bike share system increase awareness and consideration of e-bikes as a commute mode? Results from a natural experiment. *International Journal of Sustainable Transportation*, 1-16. DOI: 10.1080/15568318.2020.1847370.
- Fitch, D., H. Mohiuddin and S. Handy. 2020. Electric Bike-share in the Sacramento Region is Replacing Car Trips and Supporting More Favorable Attitudes Towards Bicycling. *Sustainability*, 13, 368. DOI: 10.3390/su13010368.
- Volker, J., A. Lee, and S. Handy. 2020. Induced Vehicle Travel in the Environmental Review Process. *Transportation Research Record*. DOI: 10.1177/0361198120923365
- Handy, S. and A. Lee. 2020. What is it about bicycling? Evidence from Davis, CA. *Travel Behavior & Society*, 20, 348-357.
- Janke, J., C.G. Thigpen, and S. Handy. 2020. Examining the effect of life course events on modality type and the moderating influence of life stage. *Transportation*, 1-36.
- Fitch, D. T., J. Sharpnack, and S. Handy. 2020. Psychological stress of bicycling with traffic: examining heart rate variability of bicyclists in natural urban environments. *Transportation research part F: traffic psychology and behaviour*, 70, 81-97.
- Fitch, D. T., and S.L. Handy, 2020. Road environments and bicyclist route choice: The cases of Davis and San Francisco, CA. *Journal of Transport Geography*, 85, 102705.
- Handy, S. 2020. "Why sustainable transport cannot ignore land use," in C. Curtis, ed., *Handbook of Sustainable Transport* (Cheltingham, UK: Edward Elgar), pp. 220-229.
- Handy, S. 2020. "Making US cities pedestrian-and bicycle-friendly," in E. Deakin, ed., *Transportation, Land Use, and Environmental Planning* (Amsterdam: Elsevier), pp. 169-187.

**Thomas O'Brien, PhD**  
Center for International Trade and Transportation  
California State University at Long Beach  
Long Beach, CA

**Education:**

Doctor of Philosophy, Urban Planning (Transportation), University of Southern California, 2005.

Master of Science, Urban Planning, University of Southern California, 1992.

Bachelor of Arts, American Studies and French, University of Notre Dame, 1986.

**Current Position:**

Executive Director, Center for International Trade and Transportation, University of California State University, Long Beach, 2015–

Director of Research, Center for International Trade and Transportation, University of California State University, Long Beach, 2004–2014

**Recent Professional Appointments:**

Director of the California Local Technical Assistance Program (LTAP) Center

Director of the Southwest Transportation Workforce Center (SWTWC)

California Energy Commission, Sustainable Freight Foundations Certificate

**Recent Publications:**

O'Brien, T. and Matsumoto, D. (Forthcoming) "Southern California Regional Workforce Development Needs Assessment for the Transportation and Supply Chain Industry Sectors." Case Studies on Transport Policy: A Journal of the World Conference on Transport Research Society.

O'Brien, T. and Braham, A. (2021) "Diversity & Inclusion in Higher Education: Two Case Examples." TR News, 333, pp. 22-25.

Sanchez, D. and O'Brien, T. (2020) "Stakeholder Relationships in City Logistics," in J.P. Rodrigue (ed) City Logistics: Concepts, Policy and Practice. London: Routledge. Accessed at 4.1 – Stakeholders Relationships in City Logistics | City Logistics: Concepts, Policy and Practice (globalcitylogistics.org)

O'Brien, T. & Jakovich, S. (2019) "Creating communities of practice for the new mobility workforce: lessons from the National Transportation Career Pathway Initiative," in T. Reeb (ed) Empowering the New Mobility Workforce. Cambridge: Elsevier.

Hall, P.V., O'Brien, T. (2018) "Trucking Regulation as a Critical Chain Asset in Port Complexes." Research in Transportation Business and Management, 26,pp. 122-127.

(ii) Other significant publications

Hall, P.V., O'Brien, T. and C. Woudsma (2013) "Environmental Innovation and the Role of Stakeholder Collaboration in West Coast Port Gateways." *Research in Transportation Economics*, 42, pp. 87-96.

Dablanc,L., Giuliano, G., Holiday, K. and O'Brien, T. (2013) "Best Practices in Urban Freight Management." *Transportation Research Record: Journal of the Transportation Research Board*. Vol. 2379, pp 29-38

Giuliano, G., O'Brien, T., Dablanc, L. and K. Holliday (2013) "Synthesis of Freight Research in Urban Transportation Planning." National Cooperative Freight Research Program (NCFRP) Report 23.  
[http://onlinepubs.trb.org/onlinepubs/ncfrp/ncfrp\\_rpt\\_023.pdf](http://onlinepubs.trb.org/onlinepubs/ncfrp/ncfrp_rpt_023.pdf)

O'Brien, T. and G. Giuliano (2012) "Contested Trade and Policy Responses in Southern California," in M. Hesse and P.V. Hall (eds.) *Cities, Regions and Flows*. London: Routledge.

O'Brien, T. (2011) "Understanding the Supply Chain," in G. Giuliano (ed.) *Intermodal Transportation: Moving Freight in a Global Economy*. Washington, D.C.: ENO Transportation Foundation.

**TYLER D. REEB, PhD**  
Director of Research and Workforce Development  
Center for International Trade and Transportation  
California State University, Long Beach  
Long Beach, CA

**Education:**

University of California, Los Angeles English/Mass Media Studies, B.A., 1997  
Claremont Graduate University, Transdisciplinary Research, PhD, 2013

**Current Position:**

Director of Research and Workforce Development, Center for International Trade and Transportation, CSULB, 2015–  
Professor, California State University, Long Beach and Los Angeles, 2011-2015

**Recent Publications:**

- Jakovich, S. Reeb, T. (2022) "Workforce Implications of Transitioning to Zero-Emission Buses in Public Transit." National Center for Sustainable Transportation.
- Ivey, S.S. Reeb, T. (2020) "Visualizing Equality in the New Mobility Workforce" in E. Ozdenerol, ed., Spatial Gender Inequalities: GIS Approaches to Global Gender Analysis. CRC Press: Taylor & Francis Group.
- Reeb, T. (2019). Empowering the New Mobility Workforce: Educating, Training, and Inspiring Future Transportation Professionals for Elsevier.
- O'Brien, T., Reeb, T., Kunitsa, A. (2016). "Mitigating Urban Freight Through Effective Management of Truck Chassis." METRANS Project CSULB 2-2.
- O'Brien, T., Reeb, T. (2016). "Planning and Policy." National Center for Sustainable Transportation, University of California, Davis.
- O'Brien, T., Reeb. (2016). "Operational Modernization at Distribution Nodes." National Center for Sustainable Transportation, University of California, Davis.
- McRae, G., O'Brien, T., Cronin, B., Alexander, A., Deckert, P., and Reeb, T. (2016). "Development of a Regional Workforce Needs Profile: Results and Guidance from the Northeast and Southwest Regional Transportation Workforce Centers." Transportation Research Board, National Academies of Sciences.

**Selected Honors:**

- Member of three National Academies of Sciences, Engineering, and Medicine standing Transportation Research Board committees focused on rural transportation (A0040C) Native American mobility issues (AME30), and workforce development and organizational excellence (AJE15)
- Moderated a three-part webinar series with the Eno Center for Transportation in 2020 to discuss critical policy, technology, and workforce issues affecting transit and supply chain professionals.
- Selected in 2020 to participate in the inaugural Coro Foundation Workforce Leadership Network (WLN), a four-month leadership development program funded by the JPMorgan Chase Foundation.

Served as a panelist for the Purdue Policy Research Institute's workshop addressing the workforce impacts of connected and autonomous transportation vehicles as part of the 2019 Ideas Festival.

Delivered keynote speech for the 2018 graduating classes of the Global Logistics Specialist (GLS) and the Marine Terminal Operations Professional (MTOP) programs.

Developed the Metropolitan Transportation Management Certificate, a course that explores the potential for conflict between freight transportation and other modes and identifies methods for mitigating such conflicts. The course was designed for regional transportation and city planners, elected officials, and other public-sector officials engaged in transportation planning.

Presented How State DOTs Can Adapt to Meeting 21st Century Workforce Challenges as part of the Colorado Department of Transportation 2016 Webinar on Workforce Adaptation Best Practices.

Guest lecturer for a University of California, Los Angeles 2016 graduate course titled Goods movement through the Ports of Los Angeles and Long Beach: How Can a Sustainable System be Achieved?

Primary Investigator (PI) for "Implementing a Community-Based Mobility Lab: Improving Traffic, Protecting Data Privacy." The Pacific Southwest Region University Transportation Center-funded grant draws from a team of engineers, data scientists, drone operators, and policy experts to pilot a scalable community-based mobility lab in Long Beach, California. This project methodology is also used in a forthcoming National Science Foundation planning grant in partnership with the City of Long Beach for which I will serve as a Co-PI.

In partnership with leaders at Los Angeles Trade Tech College, developed "Transportation in GIS," a pilot class that won the Award of Excellence for Opportunity and Empowerment at the 2019 American Planning Association Los Angeles Awards.

Lead author for a successful \$1.5 million Federal Highway Administration grant application to fund deployment of the National Transportation Career Pathway Initiative.

Led a comprehensive transit training needs assessment for the Southern California Regional Transit Training Consortium (SCRTTC). The report identifies an integrated suite of digital products to foster increased interactivity between transit agencies, training partners, and SCRTTC management.

[https://scholarworks.sjsu.edu/mti\\_publications/308/](https://scholarworks.sjsu.edu/mti_publications/308/)

Directed research and workforce development analysis for the "Port of Long Beach Zero-Emissions Blueprint." <https://www.energy.ca.gov/publications/2021/port-community-electric-vehicle-blueprint>

Established a real-world testbed for machine-learning microsensor technology on Bellflower Boulevard adjacent to CSULB in partnership with City of Long Beach's Innovations Team.

Contracted by Caltrans to conduct a statewide survey to document challenges, skills gaps, and barriers that are affecting the California transit industry's ability to recruit and retain qualified bus and train operators.

**STEPHEN G. RITCHIE, PhD**

Department of Civil and Environmental Engineering and Institute of Transportation Studies  
University of California at Irvine  
Irvine, CA 92697

**Education:**

Doctor of Philosophy, City and Environmental Engineering (Transportation), Cornell University, 1983.  
Master of Engineering Science, Civil Engineering (Transportation), Monash University, Australia, 1981.  
Bachelor of Engineering, Civil Engineering (1<sup>st</sup> Class Honours), Civil Engineering, Monash University, Australia, 1977.

**Current Position:**

Director, Institute of Transportation Studies, University of California, Irvine, 2006 –  
Chair, Department of Civil and Environmental Engineering, 1995 – 2000  
Professor, 1993 –  
Associate Professor, 1988 – 1993  
Assistant Professor, 1985 – 1988  
Assistant Professor, Department of Civil Engineering, University of Washington, 1983 – 1985

**Recent Professional Appointments:**

Director, Institute of Transportation Studies, University of California, Irvine, 2006 –  
Chair, Council of Directors, University of California, Institutes of Transportation Studies, 2021 – 2022, and 2017 – 2018  
Leadership Team & UCI PI, US DOT University Transportation Center for Automated Vehicles Research with Multimodal Assured Navigation (CARMEN), 2020 –  
Associate Director and Executive Committee Member: US DOT Pacific Southwest Region University Transportation Center, 1/17 to present; and University of California UCTC and UCCONNECT US DOT Region 9 University Transportation Centers, 2006 – 2017  
Founding Editor-in-Chief, Transportation Research Part C: Emerging Technologies, Elsevier Ltd.  
Co-Chair, Conference Planning Committee, 2018 North American Travel Monitoring Exhibition and Conference (invited by FHWA).  
Member/Friend of ASCE/TRB/ SHRP Advanced Technology/Freight committees.  
Faculty Advisor. UCI Institute of Transportation Engineers (ITE) Student Chapter, 2013 – 2018  
Organizer/Conference Chair/Co-Chair/Committee for major international transportation conferences.

**Recent Publications:****Book Chapters**

Li, Y., Tok, A., Feng, G., Ritchie, S.G. (2022). Understanding and Modeling the Impacts of COVID-19 on Freight Trucking Activity. In: *Pandemic in the Metropolis, Transportation Impacts and Recovery*, edited by A. Loukaitou-Sideris, A. Bayen, G. Circella and R. Jayakrishnan, Springer Tracts on Transportation and Traffic, ISBN: 978-3-031-00147-5. <https://doi.org/10.1007/978-3-031-00148-2>

Ritchie, S.G., Rindt, C., Deeter, D. (2019). Technological Innovation and Intelligent Transportation Systems for the US: Perspectives for the 21<sup>st</sup> Century. In: *US Infrastructure: Challenges and Directions for the 21<sup>st</sup> Century*, edited by A. Khan and K. Becker, Routledge, ISBN: 9781351007023. <https://doi.org/10.4324/9781351007023>

**Recent Refereed Journal Publications**

Li, Y., Allu, K., Sun, Z., Tok, A., Feng, G., Ritchie, S.G. (2022). Truck Body Type Classification Using a Deep Representation Learning Ensemble on 3D Point Sets. *Transportation Research C* (in press).

Bae, Y., Mitra, S., Rindt, C., Ritchie, S.G. (2022). Factors Influencing Alternative Fuel Adoption Decisions in Heavy-duty Vehicle Fleets. *Transportation Research D* (102). <https://doi.org/10.1016/j.trd.2021.103150>

Mitra, S., Yao, M., Ritchie, S.G. (2021). Gender Differences in Elderly Mobility in the United States. *Transportation Research A*, 154, pp. 203-226. <https://doi.org/10.1016/j.tra.2021.10.015>

Li, Y., Tok, A., Ritchie, S.G. (2021). A Deep Ensemble Neural Network Approach for FHWA Axle-based Vehicle Classification using Advanced Single Inductive Loops. *Transportation Research Record*, Journal of the Transportation Research Board, 2676(3), pp. 1-16. <https://doi.org/10.1177/03611981211049142>

Rodriguez-Roman, D., Ritchie, S. G. (2020). Surrogate-based Optimization for the Design of Area Charging Schemes Under Environmental Constraints. *Transportation Research D*, 72, pp. 162-186. <https://doi.org/10.1016/j.trd.2019.04.015>

Rodriguez, A. Jin, W., Ritchie, S.G. (2019). An extension of Newell's Simplified Kinematic Wave Model to Account for First-In First-Out Violation: With an Application to Vehicle Trajectory Estimation. *Transportation Research C*, 109C, pp. 79-94. <https://doi.org/10.1016/j.trc.2019.10.005>

You, S., Ritchie, S. G. (2019). Tour-based Truck Demand Modeling with Entropy Maximization Using GPS Data. *Journal of Advanced Transportation*, Article ID 5021026, December, pp. 1-11. <https://doi.org/10.1155/2019/5021026>

Hyun, K., Jeong, K., Tok, A., Ritchie, S. G. (2019). Assessing Crash Risk Considering Vehicle Interactions With Trucks Using Point Detector Data. *Accident Analysis and Prevention*, 130, pp. 75-83. <https://doi.org/10.1016/j.aap.2018.03.002>

Li, Y., Tok, A., Ritchie, S.G. (2019). Individual Truck Speed Estimation from Advanced Single Inductive Loops. *Transportation Research Record*, Journal of the Transportation Research Board, 2673 (5).

<https://doi.org/10.1177/0361198119841289>. Best Paper Award from the TRB Subcommittee on Travel Time, Speed, and Reliability (ABJ30(3)).

**IAN R. ROARK, Ed.D.**  
Vice Chancellor of Workforce Development and Innovation  
Pima Community College  
Tucson, AZ 85743

**Education:**

Doctor of Education, Educational Leadership, University of Texas at San Antonio, 2013.  
Master of Education, Educational Leadership, University of Texas of the Permian Basin, 2004.  
Bachelor of Music, Angelo State University, 1999.

**Current Position:**

Vice Chancellor of Workforce Development & Innovation, Pima Community College  
2022

**Recent Professional Appointments:**

President of Workforce Development & Strategic Partnerships, March  
2015-June 30, 2022

Dean/Executive Dean of Career Technical & Workforce Education, Odessa  
College. September 2010-February 2015

Vice President of Workforce Development & Strategic Partnerships,  
March 2015-June 30, 2022

Director of Career & Technical Education/P-16 and Social Studies Coordinator, Ector  
County ISD, June 2006 – June 2008

**Recent Publications:**

(i. Publications most closely related to proposal project)

*Helping Drive Attainment Rates for the Workforce*. Join Interview with Pima CC  
Chancellor, Online article published for The EvoLLLution, 2020.

*Building a Workforce Community After Crisis*. Online article published for The  
EvoLLLution, 2020.

Co-Authored Chapter 5: *Anticipating & Responding to Changes in the Mobility Sector:  
Empowering the New Mobility Workforce*. Tyler Reeb, Ed., Elsevier (ISBN 978-0-12-  
816088-6)

*The Evolving World of Community Colleges: Market Position, Competition and the  
Future*. Online article published for The EvoLLLution, 2018.

*Replacing the Third Leg: Corporate Partnerships and Long-Term Community College  
Success Supporting Working Adults at the Community College*. Online article  
published for The EvoLLLution, 2017.

*Supporting Working Adults at the Community College*. Online article published for The  
EvoLLLution, 2014.

*Collaborating to Drive Statewide Institutional Success*. Online article published for The  
EvoLLLution, 2013.

*The Impact of Mandatory Student Success Courses on Community College Student Persistence. Doctoral Dissertation*, available from ProQuest Dissertations and Theses database, (UMI No. 3607615), 2013.

**Notable Synergistic/Service Activities:**

New America Models/Career Prep., Advisory Committee Member, 2021-Present  
NSC/ESG Quality Credentials Workgroup- AZ TeamAZ Community College Rep., 2021-Present  
Arizona Reskilling & Revitalization Network Team, Steering Committee Lead, 2020-2021  
Tucson Metro Chamber Workforce Dev. Blueprint, Task Force Member, 2019-2020  
Tucson Metro Chamber Strategic Planning Task Force, Member, 2019-2020  
Sun Corridor, Inc. Tucson Intl. Airport Blueprint Team, Targeted Industries Team, 2019  
AC4 Workforce & Economic Development Committee, Chair, 2018-Present  
Arizona Cyber Team Workforce Development Team, Task Force Member, 2018-2020  
Tucson Metro Chamber of Commerce, Board of Directors, 2018-Present  
United Way of Tucson ELDER Alliance, Leadership Council, 2018-Present  
University Transportation Ctr. PSR. CO-PI/Executive Committee, 2017-Present  
Tucson Urban League, Board of Directors, 2017-2018  
PAG Economic Vitality Advisory Committee, Member, 2016-Present  
Pathways to Prosperity Tucson Regional Workgroup, Member, 2016-2018  
Arizona Association for Economic Development, Government Affairs Committee, 2015-Present  
Manufacturing Institute Education Council, Council Member, 2015-2020  
Pima County Workforce Investment Board, Planning Committee, 2015-Present  
Career Pathways Workgroup for WIOA AZ State Plan, Member, 2015  
Texas Association of College Technical Educators, Board of Directors, 2012-2015  
West Texas Energy Consortium, Education/Workforce Co-Chair, 2012-2015  
Permian Basin Workforce Development Board, OC President's Representative, 2010-2015  
Odessa Chamber of Commerce Board, *Ex-officio* for ECISD, 2008-2010

**Awards & Recognitions:**

Education Design Lab, Designer in Residence, 2021-2022  
Aspen Rising Presidents Fellowship for Community College Excellence, Fellow, 2019-2020  
Arizona Association for Economic Development Workforce Practitioner of the Year, 2019  
University of Arizona Eller Executive Education Southwest Leadership Program, 2017  
Pima CC recognition for the role in development and passage of Arizona Senate Bill 1322  
2016 Odessa College Leadership Institute, 2011

**DANIEL A. RODRIGUEZ, PhD**  
Department of Environmental Science and Policy  
University of California at Berkeley  
Berkeley, CA 94720

**Education:**

Doctor of Philosophy, University of Michigan, Ann Arbor 2000.  
Master of Science, Massachusetts Institute of Technology, 1996.  
Bachelor of Science, Summa Cum Laude, Fordham University, 1994.

**Current Position:**

Chancellor's Professor, Department of City and Regional Planning, University of California, Berkeley, 2016–  
Distinguished Professor of Sustainable Community Design, Department of City and Regional Planning, University of North Carolina at Chapel Hill (UNC-CH), 2014–2016  
Adjunct Professor, Department of Epidemiology, UNC-CH, 2013–2016  
Professor, Department of City and Regional Planning, UNC-CH, 2013–2014  
Associate Professor, Department of City and Regional Planning, UNC-CH, 2007–2012  
Assistant Professor, Department of City and Regional Planning, UNC-CH, 2001–2006

**Recent Professional Appointments:**

Co-Chair, Department of City and Regional Planning, University of California, Berkeley, 2021–2022  
Associate Director, Interim Director, Director, Institute of Transportation Studies, University of California, Berkeley, 2018–2022  
Director, Center for Sustainable Community Design, Institute for the Environment, UNC-CH, 2014–2016  
Director, Carolina Transportation Program, UNC-CH, 2007–2014  
Interim Director, Center for Urban and Regional Studies, UNC-CH, 2009  
Director, Graduate Studies and Vice-Chair, Department of City and Regional Planning, UNC-CH, 2006–2008, 2012–2016

**Books:**

Berke, P., Godschalk, D., Kaiser E. with Rodríguez, D. A. (2006). *Urban land use planning*, 5<sup>th</sup> Edition. Urbana-Champaign, IL: University of Illinois Press.

**Recent Publications:**

Dannenberg, A. L., Rodriguez, D. A., & Sandt, L. S. (2021). Advancing research in transportation and public health: A selection of twenty project ideas from a U.S. research roadmap. *Journal of Transport & Health*, 21, 101021.  
doi:<https://doi.org/10.1016/j.jth.2021.101021>

Diez Roux, A. V., Barrientos-Gutierrez, T., Caiaffa, W. T., Miranda, J. J., Rodriguez, D., Sarmiento, O. L., . . . Vergara, A. V. (2020). Urban health and health equity in Latin

- American cities: what COVID-19 is teaching us. *Cities & Health*, 1-5.  
doi:10.1080/23748834.2020.1809788
- Rodriguez, D. A., & Vergel-Tovar, E. (2017). Urban development around bus rapid transit stops in seven cities in Latin-America. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 11, 2, 175-201.
- Maurer-Braun, L., Rodriguez, D. A., Song, Y., Meyer, K. A., Lewis, C. E., Reis, J. P., & Gordon-Larsen, P. (2016). Changes in walking, body mass index, and cardiometabolic risk factors following residential relocation: Longitudinal results from the CARDIA study. *Journal of Transport and Health*, 3, 4, 426-439.
- Braun, L.M., Rodriguez, D.A., Cole-Hunter, T., Ambros, A., Donaire-Gonzalez, D., Jerrett, M., Mendez, M., Nieuwenhuijsen, M.J., de Nazelle, A. (2016). Short-term planning and policy interventions to promote cycling in urban centers: Findings from a commute mode choice analysis in Barcelona, Spain. *Transportation Research Part A: Policy and Practice*, 89, 164-183.
- Sandt L.S., Marshall S.W., Rodriguez D.A., Evenson K.R., Ennett S.T., Robinson W.R. (2016). Effect of a community-based pedestrian injury prevention program on driver yielding behavior at marked crosswalks, *Accident Analysis and Prevention*, 93, 169-178.
- Rodríguez, D. A., Merlin L. A, Prato, C. G., Conway, T. L., Cohen, D., Elder, J. P., Evenson, K. R., McKenzie, T. L., Pickrel, J. L., & Veblen-Mortenson, S. (2015). Influence of the built environment on pedestrian route choices of adolescent girls. *Environment and Behavior*, 47, 4, 259-394.
- Rodriguez, D.A., Vergel-Tovar, E., Camargo, W.F. (2016). Land development impacts of BRT in a sample of stops in Quito and Bogotá. *Transport Policy*, doi:10.1016/j.tranpol.2015.10.002.
- MacDonald-Gibson, J., Rodriguez, D.A., Dennerlein, T., Mead, J., Hasch, T., Meacci, G., Levin, S. (2015). Predicting Urban Design Effects on Physical Activity and Public Health: A Case Study. *Health & Place*, 35, 79-84.
- Rodríguez, D. A., Merlin L. A, Prato, C. G., Conway, T. L., Cohen, D., Elder, J. P., Evenson, K. R., McKenzie, T. L., Pickrel, J. L., & Veblen-Mortenson, S. (2015). Influence of the built environment on pedestrian route choices of adolescent girls. *Environment and Behavior*, 47, 4, 259-394. doi: 10.1177/0013916513520004.
- Rodríguez, D. A. & Rogers, J. (2014). Can housing and accessibility information influence residential location choice and travel behavior? An experimental study. *Environment and Planning B*, 41, 3, 534-550.

### **Selected Honors:**

- Best paper of the year, awarded by *Risk Analysis*, 2015  
 Excellence in Safety Research Poster Award, given by Active Living Research and the Robert Wood Johnson Foundation, in conjunction with the CDC National Center for Injury Prevention and Control, 2013

**EDWARD J. SMAGLIK, PhD., P.E.**  
College of Engineering, Informatics and Applied Sciences  
Northern Arizona University  
Flagstaff, AZ 86011

**Education:**

Doctor of Philosophy, Civil Engineering, Purdue University, 2005.  
Master of Science, Civil Engineering, Purdue University, 2001.  
Bachelor of Science, Civil Engineering, Marquette University, 1999.

**Current Position:**

Professor, Northern Arizona University, 2017–  
Director, AZTrans, The Arizona Laboratory for Applied Transportation Research,  
2013 –  
Senior Engineer, Kittelson & Associates, 2014–2015  
Associate Professor, Northern Arizona University, 2013–2017  
Associate Professor, Northern Arizona University, 2007–2013  
Post-Doctoral Visiting Faculty, Purdue University, 2005–2007

**Recent Professional Appointments:**

Handling Editor, *Transportation Research Record*, 2019 –  
Chair, Transportation Research Board Committee ACP25, Standing Committee on  
Traffic Signal Systems, 2020 –  
Member, Arizona DOT Traffic Control Product Evaluation Committee, 2014 –  
Registered Professional Engineer, Arizona

**Recent Publications:**

Steven R. Gehrke, Brendan J. Russo, Bita Sadeghiniasr, Katherine R. Riffle (U), Edward J. Smaglik & Timothy G. Reardon. Spatial interactions of shared e-scooter trip generation and vulnerable road user crash frequency, *Journal of Transportation Safety & Security*, DOI: 10.1080/19439962.2021.1971813, 2021  
Russo, B.J., James, E., Erdmann, T. (U), and E. Smaglik, “Pedestrian and Bicyclist Behavior at Highway-Rail Grade Crossings: An Observational Study of Factors Associated with Violations, Distraction, and Crossing Speeds During Train Crossing Events”, *Journal of Transportation Safety and Security*, 2020.  
Yu, F. (G); Mohebbi, A.; Cai, S.; Akbariyeh, S.; Russo, B.J.; Smaglik, E.J. The Influence of Seasonal Meteorology on Vehicle Exhaust PM2.5 in the State of California: A Hybrid Approach Based on Artificial Neural Network and Spatial Analysis. *Environments* 2020, 7, 102. <https://doi.org/10.3390/environments7110102>  
Russo, B., Kothuri, S., Smaglik, E., Aguilar, C. (G), James, E. (U), Levenson, N., and Kponce, P. “Exploring the Impacts of Intersection and Traffic Characteristics on the Frequency and Severity of Bicycle-Vehicle Conflicts.” *Advances in Transportation Studies*, 2019.  
Mohebbi, A., Yu, F. (G), Cai, S. (U), Akbariyeh, S., & Smaglik. E. J. (2020). “Spatial Study of Particulate Matter Distribution, based on Climatic Indicators during Major

- Dust Storms in the State of Arizona." *Frontiers of Earth Science*, <https://doi.org/10.1007/s11707-020-0814-4>.
- Russo, B.J., and E.J. Smaglik, "Analysis of Factors Affecting Injury Severity for Riders or Occupants of All-Terrain Vehicles and Golf Carts Involved in Police-Reported Crashes", *Accident Analysis and Prevention*, Vol. 133, 2019.
- Mohebbi, A., Green, G.T. (G), Akbariyeh, S., Yu, F. (U), Russo, B.J., and E. Smaglik, "Development of Dust Storm Modeling for Use in Freeway Safety and Operations Management: An Arizona Case Study", *Transportation Research Record: Journal of the Transportation Research Board*, Volume 2673, Issue 5, pp 175 – 187, 2019.
- Kothuri, Sirisha; Smaglik, Edward; Kading, Andrew; Sobie, Christopher (G), and Koonce, Peter. "Guidance on Signal Control Strategies for Pedestrian to Improve Walkability." *ITE Journal*, Volume 8, Issue 5, pp. 35-39, 2018.
- Russo, B.J., James, E. (U), C. Aguilar (G), and E.J. Smaglik. "Walking on the Wild Side: Distracted Pedestrians and Traffic Safety", *Transfers Magazine: Research Publication of the Pacific Southwest Region University Transportation Center*, Issue 1, pp. 13-18, 2018.
- Russo, B. J., James, Emmanuel (U), Aguilar, Cristopher (U), and Smaglik, Edward. "Pedestrian Behavior at Signalized Intersection Crosswalks: An Observational Study of Factors Associated with Distracted Walking, Pedestrian Violations, and Walking Speed." *Transportation Research Record*, 18-03541, 12 pg, 2018.
- Hameed, Aswad, Hurwitz, David S., and Smaglik, Edward. "Implications of Variable Legal and Driver Training Manual Language on Driver Behavior in Response to the Yellow." *ITE Journal*, Volume 8, Issue 1, pp. 44-49, 2018
- Sharma, A., Smaglik, E., Kothuri, S., Oliver Smith, Koonce, P., and Huang T. "Leading Pedestrian Interval Implementation as a Marginal Costs and Benefits Problem." *Transportation Research Record: Journal of the Transportation Research Board*, Issue 2620, pp 96–104, 2017
- Liu, Chenhui, Sharma, Anuj, Smaglik Edward J., and Kothuri, Sirisha. "TraSER: A Traffic Signal Event-Based Recorder." *SoftwareX*, Volume 5, pp 156-162, Elsevier, October 2016.
- Sobie, Chris (U), Smaglik, Edward J., Sharma A., Kading A., Kothuri, S., and Koonce, P. "Managing User Delay with a Focus on Pedestrian Operations." *Transportation Research Record*, # 2558. TRB, National Research Council, Washington, DC, pp 20-29, 2016
- Zhao M., Sharma A., Smaglik E., and Overman T. "Performance-based Investment Programming for Traffic Signal Battery Backup Systems Using Event Based Traffic Controller Logs." *Transportation Research Record*, #2488, TRB, National Research Council, Washington, DC, pp 53-61, 2015.
- Gyawali S., Sharma A., Khattak A., and Smaglik E. "Advanced Warrant Analysis for Displaced Left Turn Intersections using Decision Assistance Curves." *Transportation Research Record*, #2486, TRB, National Research Council, Washington, DC, pp 54-63, 2015.

**BRIAN D. TAYLOR, PhD, FAICP**  
Professor of Urban Planning and Public Policy  
Director, Institute of Transportation Studies  
UCLA  
Los Angeles, CA 90095

**Education:**

Doctor of Philosophy, Urban Planning, UCLA, 1992.  
Master of City Planning, City and Regional Planning, UC Berkeley, 1988.  
Master of Science, Civil (Transportation) Engineering, UC Berkeley 1986.  
Bachelor of Arts, (Urban-Economic) Geography, UCLA, 1983.

**Academic Position:**

Professor, Departments of Urban Planning and Public Policy, Luskin School of Public Affairs, UCLA, 2007-

**Recent Professional Appointments:**

Director, Institute of Transportation Studies, UCLA, 2001-  
Director, Lewis Center for Regional Policy Studies, UCLA, 2011-2018  
Chair, Department of Urban Planning, UCLA Luskin School of Public Affairs, 2008-2011

**Notable Service and Honors**

*California Transportation Foundation Transportation Award—Organized Research Program of the Year*, California Transportation Foundation, for the UC ITS COVID-19 Response and Recovery Research Program, 2021

*Charley V. Wootan Award*, TRB, for best *Transportation Research Record* transportation policy article, “Negotiating a Financial Package for Freeways: California’s 1947 Collier-Burns Act and the Creation of Highway Trust Funds,” 2016

One of *10 Leading Academic Transportation Leaders*, selected jointly by the Council of University Transportation Centers and the Eno Center for Transportation, 2016

*National Associate*, National Academies of Science, Engineering, and Medicine, for exceptional lifetime contributions to the work of the National Research Council, 2016

Chair, *Innovative Urban Mobility Services: Issues and Opportunities*, Special Report Committee of the Transportation Research Board, 2014-2016

Chair, *Committee to Review Federal Transit Administration’s Transit Economic Requirements Model* (TERM), Transportation Research Board, 2012-2013

**Recent Publications:** (current and former student co-authors listed in *italics*)

**Journal Articles** (86 total, 72 refereed; recent examples listed below)

Dasmalchi, Eric and Brian D. Taylor. 2022. “Examining Shifts in the Balance of Riders and Bus Service Before and During the Pandemic in Boston, Houston, and Los Angeles,” *Findings*, April.

Wasserman, Jacob and Brian D. Taylor. 2022. “Transit Blues in the Golden State: Regional Transit Ridership Trends in California,” *Journal of Public Transportation*, 24: 100030.

- Manville, Michael, Brian D. Taylor, Evelyn Blumenberg, and *Andrew Schouten*. 2022. "Vehicle access and falling transit ridership: evidence from Southern California," *Transportation*, published online.
- Schouten, Andrew*, Evelyn Blumenberg, and Brian D. Taylor. 2021. "Rating the Composition: Deconstructing the Demand-Side Effects on Transit Use Changes in California," *Travel Behaviour & Society*, 25: 18-26.
- Siddiq, Fariba* and Brian D. Taylor. 2021. "Tools of the Trade? Assessing the Progress of Accessibility Measures for Planning Practice," *Journal of the American Planning Association*, 87(4): 497-511.
- Ding, Hao* and Brian D. Taylor. 2021. "Traffic Trumps All: Examining the Effect of Traffic Impact Analyses on Urban Housing," *Journal of Planning Literature*, 37(1):3-16.
- Paul, Julene* and Brian D. Taylor. 2021. "Who Lives in Transit-friendly Neighborhoods? An Analysis of California Neighborhoods over Time," *Transportation Research: Interdisciplinary Perspectives*, 10: 100341.
- Schouten, Andrew*, Brian D. Taylor, and Evelyn Blumenberg. 2021. "Who's on Board? Examining the Changing Characteristics of Transit Riders Using Latent Profile Analysis," *Transportation Research Record*, 2675(7): 1-10.
- Brown, Anne, Jaimee Lederman*, Brian D. Taylor, and Martin Wachs. 2020. "Analyzing voter support for California's local option sales taxes for transportation," *Transportation*, 48: 2103-2125.
- Taylor, Brian D. and *Yu Hong Hwang*. 2020. "The Eighty-Five Percent Solution: A Historical Look at Crowdsourcing Speed Limits and the Question of Safety," *Transportation Research Record*, 2674(9): 346-357.
- Book Chapters** (12 total, 2 refereed; recent example listed below)
- Speroni, Samuel*, Brian D. Taylor, and *Yu Hong Hwang*. 2022. "Pandemic Transit: A National Look at the Shock, Adaptation, and Prospects for Recovery, *Pandemic in The Metropolis: Transportation Impacts and Recovery*. Basingstoke, UK: Springer
- Monographs** (25 total, 9 refereed; recent example listed below)
- Blumenberg, Evelyn, *Mark Garrett, Hannah King, Julene Paul, Madeline Ruvolo, Andrew Schouten*, Brian D. Taylor, and *Jacob Wasserman*. 2020. What's Behind Recent Transit Ridership Trends in the Bay Area? Volumes I & II. Los Angeles CA: UCLA Institute of Transportation Studies. 184 + 229 pages.
- Reports** (51 total, 1 refereed; recent examples listed below)
- Wasserman, Jacob, Nately Rios, Hannah King, Fariba Siddiq, Benjamin Bressette*, and Brian D. Taylor. 2022. *Transit(ory) Finance: The Past, Present, and Future Fiscal Effects of COVID-19 on Public Transit in Southern California*. UCLA Institute of Transportation Studies, 81 pages.
- Ding, Hao* and Brian D. Taylor. 2021. *Making Transit Safe to Ride During a Pandemic: What Are The Risks and What Can Be Done in Response?* UC Institute of Transportation Studies, 29 pages.
- Grembek, Offer, Katherine Chen, Brian D. Taylor, *Yu Hong Hwang, Dillon Fitch, Sonia Anthoine, Bingchu Chen, Salvador Grover*. 2020. *Research Synthesis for the California Zero Traffic Fatalities Task Force*. UC Institute of Transportation Studies, 88 pages.
- Plus: **Conference Proceedings** (3 total); **Reviews** (2 total); **Short Articles** (30 total); **Commentary** (13 total)

## Appendix C: Center Budget Plan

### Pacific Southwest Region University Transportation Center Combined Budget

Proposed Center Federal Funding Amount: \$3,000,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	27,527	38,537	USC Director Marlon Boarnet salary
Faculty Salaries	223,585	655,500	Faculty salary for research activities - please refer to each institution's budget
Administrative Staff Salaries	256,818	30,119	Salary for administrative support staff - please refer to each institution's budget
Other Staff Salaries	57,629	134,534	Please refer to each partner institution's budget
Student Salaries	387,279	623,341	Salary for Graduate Student Research Assistants - please refer to each institution's budget
Staff Benefits	195,883	315,304	Fringe Benefits are calculated using each institution's federally negotiated rates
<b>Total Salaries and Benefits</b>	<b>\$1,148,721</b>	<b>\$1,797,335</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	284,091	225,734	Tuition and Fee remission- please refer to each institution's budget
Technology Transfer	289,656	166,239	Funds to support web magazine, research briefs, conferences - please refer to each institution's budget. Note: We only note direct costs in Technology Transfer. We understand that indirect costs apply toward the 5% min spend. We are above the 5% with direct costs only.
Permanent Equipment	0	0	None requested.
Expendable Property, Supplies, and Services	10,504	5,840	Program supplies and services - please refer to each institution's budget
Domestic Travel	35,780	21,160	Domestic travel - please refer to each institution's budget
Foreign Travel	0	0	None requested.
Other Direct Costs (specify)	373,718	35,396	Please refer to each partner institution's budget
<b>Total Direct Costs</b>	<b>\$2,142,470</b>	<b>\$2,251,704</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	857,530	748,296	F&A costs are calculated using each institution's federally negotiated rate
<b>TOTAL COSTS</b>	<b>\$3,000,000</b>	<b>\$3,000,000</b>	<b>Total Project Costs</b>

**Lead Institution: University of Southern California**

Proposed Federal Funding Amount: \$1,150,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	27,527	38,537	Center Director's Salary - Prof. Marlon Boarnet (USC), 25% time
Faculty Salaries	99,326	184,000	Ioannou, Associate Director Research, Giuliano PSR Executive Committee member, and salaries for other faculty members (TBD) for research activities. Refer to faculty research RFP process in proposal narrative.
Administrative Staff Salaries	139,750	0	Salary for administrative support staff: Associate Director Administration, Manager of Student Engagement, & C&G/Financial Coordinator.
Other Staff Salaries	27,500	0	Administrative Assistant.
Student Salaries	153,591	356,000	Salary for Graduate Student Research Assistants. Estimated rates are based on current USC salary scales.
Staff Benefits	100,877	74,550	Fringe Benefits are calculated using USC federally negotiated rates, which are applied by title code and fiscal year
<b>Total Salaries and Benefits</b>	<b>\$548,571</b>	<b>\$653,087</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	27,708	153,800	Tuition & Fee remission is calculated at current rates
Technology Transfer	7,000	0	Faculty and student travel to conferences, to disseminate results such as the TRB Annual Conference held in Washington D.C., seminars that communicate results/findings/outreach to practice, reimbursement to tech transfer event guest lecturers
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	3,664	4,840	Funds for basic program materials and supplies; postage and mailing; and funds to facilitate various center events and activities
Domestic Travel	5,000	4,000	Includes travel for grant coordination and faculty and student travel to conferences, such as the TRB Annual Conference held in Washington D.C., seminars, reimbursement to event guest lecturers
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	135,628	22,506	Research funds to be distributed via RFP competition to researchers inside and outside the PSR consortium. Since we do not know in advance how these funds will be allocated across universities, we are retaining as "other direct costs" until the awards are made. Graduate research assistants medical fees are also included as other direct costs.
<b>Total Direct Costs</b>	<b>\$727,571</b>	<b>\$838,233</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	422,429	311,767	USC 50% / METRANS Transportation Center uses a rate lower than the federally negotiated rate per an agreement with the Deans of USC Price School of Public Policy and the USC Viterbi School of Engineering/ F&A not charged on tuition and only on the first \$25K of subcontracts. Voluntarily waived F&A and tuition costs are included in match funds.
<b>TOTAL COSTS</b>	<b>\$1,150,000</b>	<b>\$1,150,000</b>	<b>Total Project Costs</b>

**Partner Institution: California State University, Long Beach**  
**Subaward Amount (Federal): \$240,000**

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	3,060	7,140	Federal: Tom O'Brien (PI): 0.3 months; Match: Tom O'Brien (PI): 0.7 months.
Administrative Staff Salaries	3,033	9,100	Federal: Marisa Traver Eide: 0.2 months; TBD Financial Manager: 0.1 months / Federal: Marisa Traver Eide: 0.1 months; Financial Manager: 0.2 months
Other Staff Salaries	8,809	35,236	Federal: Tyler Reeb: 0.4 months; Ben Olson: 0.5 months; Stacey Park: 0.5 months;
Student Salaries	7,556	7,193	Federal: Graduate Student (TBD): 2.86 months
Staff Benefits	9,021	30,107	57.03% Management Personnel Plan (MPP); 64.45% Full Time Benefits (FTB); 42.45% Part Time Benefits (PTB); 10.68% Part Time (PT) Temp
<b>Total Salaries and Benefits</b>	<b>\$31,479</b>	<b>\$88,776</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	0	0	None requested
Technology Transfer	126,073	98,064	Federal: Tom O'Brien (PI) salary 0.1 and Match: 0.7 to manage Tech Transfer activities and events. Salary for support staff for events and Tech Transfer, INUF and Town Hall event expenditures: event venue at hotel (food/beverage, meeting rooms, insurance, audiovisual); site tour costs; brochure and promo material design, printing, and production; Town Hall video production.
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	0	0	None requested
Domestic Travel	5,160	5,160	Travel for PI to attend TRB and CUTC annual meeting
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	0	0	None requested
<b>Total Direct Costs</b>	<b>\$162,712</b>	<b>\$192,000</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	77,288	48,000	47.5% Federally Negotiated F&A, applied to MDTC. Equipment and subcontracts over \$25,000 are excluded from MDTC. / Federal: \$59,885.00 of F&A is for Technology Transfer / Match: \$24,516.00 of F&A is for Technology Transfer
<b>TOTAL COSTS</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>Total Project Costs</b>

**Partner Institution: Northern Arizona University**

Subaward Amount (Federal): \$100,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	16,697	56,397	Smaglik: 0.82 months Federal, 0.19 months Match / Russo: 0.5 months Federal; 3.72 months Match (Outreach, three classes, thesis advising) Gehrke: 3 months Match (three classes) / Faculty stipend for fellowship mentoring
Administrative Staff Salaries	0	0	None requested
Other Staff Salaries	0	0	None requested
Student Salaries	15,135	0	Student internships hourly support. Supports 2 undergraduates and 1 graduate student annually.
Staff Benefits	3,636	16,138	Fringe benefit rates are rounded estimates based on the projected cost of health, dental, life, disability, FICA and Medicare, unemployment, and retirement benefits relative to the employee's salary and/or wages, FTE, and election of benefits. The employee's fringe benefit rate is calculated by dividing their salary by the total cost of their benefit package.
<b>Total Salaries and Benefits</b>	<b>\$35,468</b>	<b>\$72,535</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	11,390	0	Tuition remission for graduate fellowship
Technology Transfer	10,621	3,859	Gehrke, .25 months Federal; 0.5 months match / which will be spent managing dissemination of fellowship and internships products, as well as managing web and social media activities. / Benefits for Gehrke. Fringe benefit rates are rounded estimates based on the projected cost of health, dental, life, disability, FICA and Medicare, unemployment, and retirement benefits relative to the employee's salary and/or wages, FTE, and election of benefits. The employee's fringe benefit rate is calculated by dividing their salary by the total cost of their benefit package / Travel support for students and faculty to disseminate NAU work. Venues include TRB, AZ Roads and Streets, ITS AZ, ITE/IMSA, and others / TRB Travel for fellowship recipients; not indirect eligible
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	859	0	Printing and meeting supplies / Student organization meeting meals and supplies (ITE) / Supplies for undergraduate research: data storage and field data collection supplies
Domestic Travel	6,000	0	Travel to PSR Congress / Student organization travel and outreach travel /
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	19,765	0	Graduate Fellowship Stipend; Graduate Fellowship Insurance. / Fellowship costs are not subject to indirect cost
<b>Total Direct Costs</b>	<b>\$84,103</b>	<b>\$76,394</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	15,897	23,606	Indirect rate of 30.9%; all items on this page subject to indirect / Indirect rate of 30.9%; all subject to indirect except Student Tuition and Other Direct Costs.
<b>TOTAL COSTS</b>	<b>\$100,000</b>	<b>\$100,000</b>	<b>Total Project Costs</b>

**Partner Institution: Pima Community College**

Subaward Amount (Federal): \$100,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	10,800	49,600	Federal share: (12 months) Logistics Fast Track, apprenticeship implementation, K12 tribal outreach. Match: 80%/\$62,000 Instructional Faculty
Administrative Staff Salaries	41,004	6,068	Program Manager (15%/\$83,775); Dean (5%/\$121,368 ). 12 months / Program Coordinator (10 months due to new hire time) 65%/\$52,500. Program Manager and program coordinator equals same 80% time from last PSR UTC grant.
Other Staff Salaries	4,897	0	Instructional designer
Student Salaries	0	0	None requested
Staff Benefits	15,147	18,442	Fringe Benefits are calculated using PIMA federally negotiated rates, which are applied by title code and fiscal year
<b>Total Salaries and Benefits</b>	<b>\$71,848</b>	<b>\$74,110</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	0	0	None requested
Technology Transfer	0	0	None requested
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	0	1,000	Orientation supplies
Domestic Travel	0	12,000	1 staff to UTC congress (hotel \$250/night [x3], airfare \$750, +\$500 each) / 2 staff/3 students to UTC congress (hotel \$250/night [x3], airfare \$750, +\$500 each)
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	3,152	12,890	Federal: upskilling for faculty/staff Match: Outreach for orientations, logistics and truck driver programs (7890) and upskilling faculty and staff (5000)
<b>Total Direct Costs</b>	<b>\$75,000</b>	<b>\$100,000</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	25,000	0	Total direct x 42% (federally negotiated rate for FY 22/23) / 42% with total cap of \$25K as a sub
<b>TOTAL COSTS</b>	<b>\$100,000</b>	<b>\$100,000</b>	<b>Total Project Costs</b>

**Partner Institution: University of California, Berkeley**  
 Subaward Amount (Federal): \$245,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	4,705	88,502	D. Rodriguez, Professor, Director ITS Berkeley, 0.54% effort of the 12-month salary. / D. Rodriguez, Professor, Director ITS Berkeley, 34.8% effort in Matching funds (12-month salary). Other faculty members will receive stipends (\$4,705 from Federal funds) to supervise student research.
Administrative Staff Salaries	0	0	None requested
Other Staff Salaries	0	22,130	L. Melendy, Academic Program Manager, Director ITS Berkeley Technology Transfer Program, 5% effort per month supported by match / K. Levine, Librarian, ITS Berkeley, 11% effort/mo over 12 months in Matching funds to support research activities.
Student Salaries	101,915	0	1. To be named – One (1) graduate student researcher (GSR) for 9 academic months (50% effort) and 3 summer months (100% effort). 2. Salary support for 5-7 Masters students. All support in Federal funds.
Staff Benefits	4,135	42,016	Fringe Benefits rates negotiated with DHHS are attached.
<b>Total Salaries and Benefits</b>	<b>\$110,755</b>	<b>\$152,648</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	21,058	0	Two semester of tuition for the graduate student researcher (Federal funds)
Technology Transfer	28,773	0	Publications support at \$75 per hour for 60 hours; other supplies/production for printing/shipping tech transfer materials / Travel for faculty/GSR dissemination activities; travel support for speakers/collaborators coming to Berkeley for tech transfer related activity / See also additional amount noted below under F&A (Indirect) Costs
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	0	0	None requested
Domestic Travel	0	0	None requested
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	0	0	None requested
<b>Total Direct Costs</b>	<b>\$160,586</b>	<b>\$152,648</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	84,414	92,352	Indirect cost and Benefits rates negotiated with DHHS are attached. / \$17,407 of F&A is for Technology Transfer
<b>TOTAL COSTS</b>	<b>\$245,000</b>	<b>\$245,000</b>	<b>Total Project Costs</b>

**Partner Institution: University of California, Davis**  
 Subaward Amount (Federal): \$245,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	30,251	44,555	Federal: 0.25 of 1 summer month for Susan Handy. Matching: .5 of 1 academic calendar month for Susan Handy / Federal: 0.25 of 1 summer month for Susan Handy. Matching: .5 of 1 academic calendar month for Susan Handy; .5 of 1 academic calendar month for Dan Sperling / Matching: .5 of 1 academic calendar month for Susan Handy; .5 of 1 academic calendar month for Dan Sperling / Federal: ~1.5 summer months effort for faculty on research project(s). Match: ~.5 months effort for faculty on research project.
Administrative Staff Salaries	12,809	0	5% effort for Senior Program Manager, 2.5% effort for Assistant Program Manager, 5% effort for Research Administrator, 2% effort for Financial Assistant / 2.5% effort for Assistant Program Manager.
Other Staff Salaries	0	30,656	Match: ~4.5 months effort for professional researchers on research project. Salary for Graduate Student Research assistants (GSRs) at 49% time academic year and 100% time summer for effort on research project(s) and dissertation grant(s). ~1.5 GSRs federal share; 1 GSR non-federal match. Estimated rates are based on current UCD salary scales.
Student Salaries	56,742	36,737	Salary for Graduate Student Research assistants (GSRs) at 49% time academic year and 100% time summer for effort on research project(s) and dissertation grant(s). ~1.5 GSRs federal share; 1 GSR non-federal match. Estimated rates are based on current UCD salary scales.
Staff Benefits	10,758	25,989	Fringe Benefits are calculated at UC Davis's federally negotiated rates, which are applied by title code and fiscal year. Please see UC Davis's rate agreement for details.
<b>Total Salaries and Benefits</b>	<b>\$110,560</b>	<b>\$137,937</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	35,737	19,485	Tuition & Fee remission costs are based on 2022/23 rates as currently published by UCD Graduate Studies. Federal share includes the 25% rebate of the tuition & fee remission provided by the UCD Provost for the ~1.5 students supported by the federal share. Match includes 100% of the tuition & fee remission for the 1 students supported by the non-federal sponsored projects.
Technology Transfer	15,086	19,873	Matching: .5 of 1 academic calendar month for Dan Sperling / 5% effort for Policy Director; 2% effort for Communications Director / Fringe Benefits are calculated at UC Davis's federally negotiated rates, which are applied by title code and fiscal year. Please see UC Davis's rate agreement for details. Tech Transfer Supplies, including recharges for presentation materials; fees for online webinar services and presentations. ITS-Davis Asilomar Conference sponsorship (room rental). / Travel for researchers to present on PSR projects (e.g., at PSR Congress). Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing. Open access publication fees
Permanent Equipment	0	0	None requested

Expendable Property, Supplies, and Services	2,850	0	Recharges for: Reprographics; conference calls / Supplies for seminars, including fees for online webinar services / Funds are budgeted for basic research project supplies, including but not limited to: data storage devices; printing for surveys, etc.; conference call charges; mailing costs; incentives for voluntary participants of Center projects.
Domestic Travel	2,050	0	PI travel to attend UTC kick-off meeting. Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing. / Invited seminar speaker travel. Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing. / Planned travel will include reimbursement for travel for site visits and field work; graduate student researcher travel; travel for collaboration; travel to project meetings. Budgeted amounts are based on UC Davis travel rates and policies, as well as current pricing.
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	500	0	WTS UC Davis chapter support (for student members to use for allowable meeting expenses, event registrations/travel, etc.).
<b>Total Direct Costs</b>	<b>\$166,783</b>	<b>\$177,295</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	78,217	67,705	Federal & Match: Indirect costs are based on UC Davis's federally negotiated rate for on-campus organized research @ 59.5% of MTDC from 07/01/2022 – 06/30/2023; and 60% of MTDC from 07/01/2023 – 06/30/2024 (applicable items indicated by *). / \$20,866 of F&A is for Technology Transfer. / Match: Indirect costs are based on UC's State of California negotiated rate for research @ 30% of MTDC.
<b>TOTAL COSTS</b>	<b>\$245,000</b>	<b>\$245,000</b>	<b>Total Project Costs</b>

**Partner Institution: University of California, Irvine**  
**Subaward Amount (Federal): \$245,000**

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	12,908	19,223	Federal: Faculty Summer Salary @ 0.5 months. Matching: Faculty Summer Salary @ 1.5 months
Administrative Staff Salaries	9,299	4,960	Federal: Communications Specialist @ 5% and Network & Systems Manager @ 5%. Matching: Administrative Support @ 5%
Other Staff Salaries	16,423	2,791	Federal: Assistant Director for Research & Coordination / Project Scientist @ 5% and Assistant Director for Programs & Engagement @ 7.5%. Matching: Assistant Director for Research & Coordination / Project Scientist @ 2%.
Student Salaries	0	98,411	Matching: 2 Graduate Student Researchers @ 50% each for 9 academic months, 2 Graduate Student Researchers at 100% each for 2.5 summer months, Undergraduate Research Assistants for a total of 32 academic weeks at 25%, and 5 Undergraduate Research Assistants for 8 summer weeks each at 50%.
Staff Benefits	13,275	7,078	UCI's composite benefit rates were used throughout the entire budget: <a href="https://research.uci.edu/sponsored-projects/employee-fringe-benefits/">https://research.uci.edu/sponsored-projects/employee-fringe-benefits/</a>
<b>Total Salaries and Benefits</b>	<b>\$51,905</b>	<b>\$132,463</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	0	37,034	Graduate Student Tuition and Fees for 2 students were calculated using the actual cost for FY'2022-2023 as posted on UCI Registrar's website: <a href="http://reg.uci.edu/fees/2022-2023/graduate.html">http://reg.uci.edu/fees/2022-2023/graduate.html</a>
Technology Transfer	0	0	None requested
Permanent Equipment <sup>2</sup>	0	0	None requested
Expendable Property, Supplies, and Services	179	0	Campus management and reporting peripherals
Domestic Travel	8,000	0	URM Graduate recruiting outreach meetings (\$1,000), Annual regional UTC symposium & executive committee meeting (\$2,000); Graduate Students partial travel support to TRB meeting (\$5,000).
Foreign Travel	0	0	None requested
Other Direct Costs (specify)	150,668	0	3 Graduate Student Fellowships for 9 academic months equivalent to 50% of GSR salary plus tuition and fees. 3 Graduate Student Fellowships for 3 summer months equivalent to 50% of GSR salary. Fellowships are not subject to indirect costs
<b>Total Direct Costs</b>	<b>\$210,752</b>	<b>\$169,497</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	34,248	75,503	Modified Total Direct Cost rate of 57% used to calculate indirect costs throughout the entire budget as posted on <a href="https://research.uci.edu/sponsored-projects/facilities-and-administrative-cost-rates">https://research.uci.edu/sponsored-projects/facilities-and-administrative-cost-rates</a>
<b>TOTAL COSTS</b>	<b>\$245,000</b>	<b>\$245,000</b>	<b>Total Project Costs</b>

**Partner Institution: University of California, Los Angeles**

Subaward Amount (Federal): \$345,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	7,858	37,793	Brian Taylor Administrative Time for overseeing UCLA campus research, educational, and tech transfer activities / Matching funds from faculty teaching UCLA transportation courses.
Administrative Staff Salaries	19,981	9,991	Operations Manager (1.8 months) and Deputy Director (0.36 months) administrative time to administer research and student programs. Additional match funds of 0.9 for Operations Manager and 0.18 months for Deputy Director.
Other Staff Salaries	0	43,721	Estimate of matching fund allocations from Caltrans-funded and California state-funded projects for faculty and staff researchers
Student Salaries	0	125,000	Estimate of matching fund allocations from Caltrans-funded projects and California state-funded for graduate student researchers
Staff Benefits	9,945	38,253	Fringe assessment per UCLA Composite Benefit Rate
<b>Total Salaries and Benefits</b>	<b>\$37,784</b>	<b>\$254,758</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	177,362	0	Student fellowships for graduate students working on research projects
Technology Transfer	78,593	23,789	2.4 months (federal funds) and 1.2 months (state funds) in salary support for communications manager Claudia Bustamante provided by matching funds / Design Contracts, Mailchimp email marketing expenses, website-related expenses / Matching funds support for Annual Arrowhead Symposium on the Transportation-Land Use-Environment Connection
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	507	0	Technology Infrastructure Fees as required by campus for internet, software, and servers. / miscellaneous supplies and other expenses to support research projects
Domestic Travel	8,000	0	Travel to Washington DC and other locations plus conference registration for the Annual Meeting of the Transportation Research Board and other nationally-prominent conferences
Foreign Travel	0	0	None requested
Other Direct Costs (specify) <sup>5</sup>	0	0	None requested
<b>Total Direct Costs</b>	<b>\$302,246</b>	<b>\$278,547</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	42,754	66,453	UCLA federal F&A Rate of 40% on Modified Total Direct Cost (excludes student tuition fee remission). No F&A on matching funds / 30% IDC on state-funded research contracts and 30% avoided overhead 0% IDC contracts
<b>TOTAL COSTS</b>	<b>\$345,000</b>	<b>\$345,000</b>	<b>Total Project Costs</b>

**Partner Institution: University of Hawaii**

Subaward Amount (Federal): \$140,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	0	68,376	Faculty salary (Dr. Karl Kim) to administer and coordinate the research projects and support the education, technology transfer, and outreach initiatives of the center. Dr. Suwan Shen will assist with conducting transportation related research and contribute approximately 3.5 months.
Administrative Staff Salaries	27,000	0	Funds requested to support a Program Manager to organize and coordinate the RFP process including advertising, review, selection, awarding, etc. The program manager will also coordinate the collection of all data and compiling them into the appropriate sponsor reports. Program Manager will also support the education, technology transfer, and outreach initiatives of the center. Total of 1.5 months of salary support towards program administration of the UTC program. / Funds requested to support a Program Manager to organize, coordinate, and execute educational initiatives of the UTC program. Total of 0.75 months of salary support towards educational initiatives of the UTC program.
Other Staff Salaries	0	0	None requested
Student Salaries	23,028	0	Funds requested to support one Graduate Assistant (GA) at the rate of 23,028 per year. GA will work 6 months at 50%FTE towards UTC related requirements including organization, coordination, and completion of reports. The graduate assistant is expected to work towards completing their degree and incorporating transportation related research into their degree.
Staff Benefits	13,289	35,555	Fringe Benefits are requested for a program manager at 37.16%, for the graduate student assistant at 14.14%. The cost sharing fringe benefit rate for faculty is 52%.
<b>Total Salaries and Benefits</b>	<b>\$63,317</b>	<b>\$103,931</b>	<b>Sum of Salaries and Benefits</b>
Student Tuition	0	15,415	University of Hawaii Graduate Assistants are provided a tuition waiver. The current tuition is estimated at \$7,708 per semester.
Technology Transfer	13,915	20,654	Faculty salary (Dr. Karl Kim) to administer and coordinate the research projects and support the education, technology transfer, and outreach initiatives of the center. / Funds requested to support a Program Manager to support the technology transfer initiatives of the center. Total of 0.75 month of salary support towards tech transfer activities of the UTC program. /Fringe Benefits are requested for a program manager at 37.16%, for the graduate student assistant at 14.14%. The cost sharing fringe benefit rate for faculty is 52%. / See also additional amount noted below under F&A (Indirect) Costs
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	1,309	0	Funds requested for basic program supplies to administer the UTC program.
Domestic Travel	1,570	0	Travel funds requested to send project investigator and Graduate Assistant to professional conferences and

			meetings to present the initial results and/or techniques conducted under the UTC program. Potential conferences include the Annual Transportation Research Board (TRB) in Washington D.C., the Institute of Transportation Engineers (ITE) conference, and the American Association of State Highway and Transportation Officials (AASHTO).
Foreign Travel	0	0	None requested
Other Direct Costs (specify) <sup>5</sup>	31,000	0	Request for Proposals (RFP) to be advertised. Since we do not know in advance how these funds will be allocated, we are retaining as "other direct costs" until the awards are made. Total of \$31,000 will be made available to support transportation related proposals.
<b>Total Direct Costs</b>	<b>\$111,111</b>	<b>\$140,000</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	28,889	0	The University of Hawaii's federally negotiated indirect costs rate for Off-Campus, Other Sponsored Activities is 26%
<b>TOTAL COSTS</b>	<b>\$140,000</b>	<b>\$140,000</b>	<b>Total Project Costs</b>

**Partner Institution: University of Nevada, Las Vegas**

Subaward Amount (Federal): \$190,000

CATEGORY	Budgeted Federal Share	Budgeted Matching Funds	Explanatory Notes
Center Director Salary	0	0	USC only
Faculty Salaries	37,980	99,914	We request 0.5 summer months for Dr. Shashi Nambisan based on his 9-month contracted salary. In addition, we will match 0.99 academic months of Dr. Nambisan's time as cost share. / We are donating 1.13 academic months for one faculty member. / We request 0.85, and 1.0 summer months each for two faculty based on their 9-month contracted salaries. In addition we will match the equivalent of 1.8 academic months for one faculty, 2.25 academic months for one faculty, and 1.13 academic months for one faculty.
Administrative Staff Salaries	3,942	0	We request \$1,650 or 0.36 months for a Program Assistant based on an FTE annual salary of \$55,000. / We are requesting 0.50 calendar months for one coordinator to focus on program specific tasks.
Other Staff Salaries	0	0	None requested
Student Salaries	29,312	0	We request a 9.75-month salary and a 6-month salary each for two engineering doctoral graduate assistants based on a 12-month salary of \$22,333 at 50% FTE.
Staff Benefits	15,800	27,176	The federally negotiated fringe rate for faculty and professionals is 27.2%. / The federally negotiated pooled fringe rate for 9-month faculty and professionals is 27.2%. / The federally negotiated fringe rate for graduate students is 15%.
<b>Total Salaries and Benefits</b>	<b>\$87,034</b>	<b>\$127,090</b>	Sum of Salaries and Benefits
Student Tuition	10,836	0	Tuition is part of a graduate assistant's overall compensation package and is a required cost. Funding is requested to support two doctoral GAs for two semesters. We have calculated these costs as follows: (\$340 per credit × 6 credits) + \$404 per semester in related fees + \$145 per semester in international student fees + (\$20 engineering differential fee × 6 credits) × 2 semesters = \$5,418 per student.
Technology Transfer	9,595	0	We request 0.50 months of summer salary for one faculty. / The federally negotiated fringe rate for faculty and professionals is 27.2%. / The noted amount is requested for two-person travel to the annual PSR conference (location TBD) and for two people to conduct outreach activities over the course of the project. / See also additional amount noted below under F&A (Indirect) Costs
Permanent Equipment	0	0	None requested
Expendable Property, Supplies, and Services	1,136	0	We request the noted amount for general supplies and consumables needed for the project.
Domestic Travel	0	0	None requested
Foreign Travel	0	0	None requested
Other Direct Costs (specify) <sup>5</sup>	33,005	0	Participant Support Costs are requested in form of stipends (\$19,500), roundtrip travel for three students (\$1,800), housing and food (\$7,650), and research supplies (\$4,055)

			for three students to engage in smart mobility summer program. Per OMB 200.68 participant support costs are excluded on MTDC, UNLV Co-P.I. affirms obtaining authorization from the sponsoring agency prior to the use of participant support funds.
<b>Total Direct Costs</b>	<b>\$141,606</b>	<b>\$127,090</b>	<b>Sum total of Direct Costs</b>
F&A (Indirect) Costs	48,394	62,910	UNLV F&A cost is calculated using a predetermined rate as stipulated by DHHS Rate Agreement dated 07/06/2021 (DHHS Audit Agency, San Francisco) minus tuition and equipment. The on-campus research rate of 49.5% of Modified Total Direct Costs (MTDC) has been effective since 07/01/17. Rate will remain 49.5% until further amended. / \$4,750.00 of F&A is for Technology Transfer.
<b>TOTAL COSTS</b>	<b>\$190,000</b>	<b>\$190,000</b>	<b>Total Project Costs</b>

## **5. Standard Forms SF-424 and SF-424B**

Signed forms generated automatically upon application submission to Grants.gov.

## **6. Confirmation of Negotiated Overhead and Fringe Benefit Rates**

Overhead and fringe benefit rate agreements are included as a separate document.

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN: DATE: 06/15/2022

ORGANIZATION:  
 University of Southern California  
 University Park  
 Los Angeles, CA 90089-0011

FILING REF.: The preceding  
 agreement was dated  
 03/09/2022

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

**EFFECTIVE PERIOD**

<b><u>TYPE</u></b>	<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>RATE (%)</u></b>	<b><u>LOCATION</u></b>	<b><u>APPLICABLE TO</u></b>
PRED.	07/01/2016	06/30/2020	65.00	On-Campus	Organized Res.
PRED.	07/01/2016	06/30/2020	26.00	Off-Campus	Organized Res.
PRED.	07/01/2016	06/30/2020	45.00	On-Campus	Instruction
PRED.	07/01/2016	06/30/2020	26.00	Off-Campus	Instruction
PRED.	07/01/2016	06/30/2020	30.50	On-Campus	Other Spon Act
PRED.	07/01/2016	06/30/2020	26.00	Off-Campus	Other Spon Act
PRED.	07/01/2016	06/30/2020	26.00	Off-Campus	Info Sci Inst
PRED.	07/01/2016	06/30/2020	26.00	Off-Campus	Ctr Creative Tech
PROV.	07/01/2020	Until Amended	(1)		

**\*BASE**

ORGANIZATION: University of Southern California

AGREEMENT DATE: 6/15/2022

---

(1) Use the same rates and conditions as those cited for fiscal year ending June 30, 2020.

\*BASE: Modified total direct costs, consisting of all direct salaries and wages, fringe benefits, materials, supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subaward in excess of \$25,000.

The off-campus base shall exclude facilities rental costs and operations and maintenance expenses from the direct cost items of materials and supplies and services.

ORGANIZATION: University of Southern California

AGREEMENT DATE: 6/15/2022

**SECTION I: FRINGE BENEFIT RATES\*\***

<b><u>TYPE</u></b>	<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>RATE (%)</u></b>	<b><u>LOCATION</u></b>	<b><u>APPLICABLE TO</u></b>
FIXED	7/1/2022	6/30/2023	34.30 (1)	All	All Employees
FIXED	7/1/2022	6/30/2023	4.40 (2)	All	Info. Sci. Instit.
FIXED	7/1/2022	6/30/2023	7.30 (2)	All	Ctr. Creative Tech.
FIXED	7/1/2022	6/30/2023	24.50 (3)	All	Post Doc.
PROV.	7/1/2023	6/30/2025			Use same rates and conditions as those cited for fiscal year ending June 30, 2023.

**\*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:**

(1) Direct salaries and wages including vacation, holiday, and sick pay of faculty and staff personnel only. Rate does not apply to student employees, Research Assistants or Teaching Assistants.

(2) Direct salaries and wages excluding all fringe benefits.

(3) Direct salaries and wages including vacation, holiday and sick pay. This rate is applicable for post docs who received their hire notification after 7/1/12.

ORGANIZATION: University of Southern California

AGREEMENT DATE: 6/15/2022

---

---

## **SECTION II: SPECIAL REMARKS**

---

### **TREATMENT OF FRINGE BENEFITS:**

This organization uses a fringe benefit rate which is applied to salaries and wages for both budgeting and charging purposes for Federal projects. The following fringe benefits are included in the fringe benefit rate:  
SOCIAL SECURITY, RETIREMENT PLANS, HEALTH AND DENTAL, UNEMPLOYMENT, WORKERS COMPENSATION, SABBATICAL LEAVE, EMPLOYEE TUITION REMISSION, LIFE INSURANCE, AND MISCELLANEOUS EMPLOYEES SERVICES. A separate rate is also applied for the Information sciences Institute and the Centers for Creative Technologies for vacation and personal days off.

### **TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims for the costs of these paid absences are not made except for paid absences that have been earned but not taken when an individual separates from the university prior to the completion of the grant, contract or other agreement.

The cost of vacation and personal days off are included in the Information Sciences Institute and the Centers for Creative Technologies fringe benefit rates. Federal projects must be credited for salaries and wages for periods when employees are on vacation or personal days off. Holiday, sick leave pay, and other paid absences are included in salaries and wages and are charged to Federal projects as part of the normal charge for salaries and wages.

ORGANIZATION: University of Southern California

AGREEMENT DATE: 6/15/2022

---

**DEFINITION OF OFF-CAMPUS:** A project is considered off-campus if the activity is conducted at locations other than in University owned or operated facilities and indirect costs associated with physical plant and library are not considered applicable to the project.

Projects conducted partially on-campus and partially off-campus: Actual costs will be apportioned between on-campus and off-campus sites consistent with where the work is performed and each portion will bear the appropriate on-campus or off-campus rate.

**DEFINITION OF EQUIPMENT**

Equipment is defined as tangible nonexpendable personal property (including information technology systems) having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit.

The rates relating to the Information Sciences Institute (ISI) and Centers for Creative Technologies (CCT) are effective for the periods identified in the negotiation agreement provided that the ISI and CCT funding or costing mechanisms now in place remain unchanged.

This rate agreement updates the fringe benefit and leave rates only.

**NEXT PROPOSAL DUE DATE**

Your fringe rate proposal based on actual costs for the fiscal year ending 06/30/22, is due to our office by 12/31/22, and your indirect cost rate proposal based on actual costs for the fiscal year ending 06/30/19 has been received and is currently under review.

ORGANIZATION: University of Southern California  
 AGREEMENT DATE: 6/15/2022

### SECTION III: GENERAL

#### A. LIMITATIONS:

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

#### B. ACCOUNTING CHANGES:

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

#### C. FIXED RATES:

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

#### D. USE BY OTHER FEDERAL AGENCIES:

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

#### E. OTHER:

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of Southern California

(TITLE)

  
 (SIGNATURE)

James Staten

(NAME)

Sr. VP Finance, CFO

(TITLE)

06/20/2022

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Arif M. Karim -S

Digitally signed by Arif M. Karim  
 Date: 2022-06-15 12:49:55-0700

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

6/15/2022

(DATE) 7148

HHS REPRESENTATIVE:

Jeanette Lau

(Telephone)

(415) 437-7820

## COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 95-6106694 DATE: 04/03/2020  
 ORGANIZATION: FILING REF.: The preceding  
 Calif State Univ, Long Beach Research Fdn agreement was dated  
 FKA: CSU, Long Beach & the Fdn 04/16/2019  
 6300 State University Drive, Suite 332  
 Long Beach, CA 90815

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

**EFFECTIVE PERIOD**

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%) LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2018	06/30/2021	47.50 On-Campus	Organized Research
PRED.	07/01/2018	06/30/2021	26.00 Off-Campus	Organized Research
PRED.	07/01/2018	06/30/2021	50.50 On-Campus	Instruction
PRED.	07/01/2018	06/30/2021	26.00 Off-Campus	Instruction
PRED.	07/01/2018	06/30/2021	47.50 On-Campus	Other Sponsored Activities
PRED.	07/01/2018	06/30/2021	26.00 Off-Campus	Other Sponsored Activities
PROV.	07/01/2021	Until Amended	Use same rates and conditions as those cited for fiscal year ending June 30, 2021.	

**\*BASE**

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel, and subgrants and subcontracts up to the first \$25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as a portion of each subgrant and subcontract in excess of \$25,000.

ORGANIZATION: Calif State Univ, Long Beach Research Fdn FKA: CSU,  
Long Beach & the Fdn

AGREEMENT DATE: 04/03/2020

---

**SECTION I: FRINGE BENEFIT RATES\*\***

---

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
FIXED	07/01/2020	06/30/2021	23.30	Foundation	Regular Employees
PROV.	07/01/2021	06/30/2024	23.30	Foundation	Regular Employees

**\*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:**

Salaries and wages excluding vacation, holiday, sick leave pay and other paid absences.

---

Page 2 of 5

ORGANIZATION: Calif State Univ, Long Beach Research Fdn FKA: CSU,  
Long Beach & the Fdn

AGREEMENT DATE: 04/03/2020

---

**SECTION II: SPECIAL REMARKS**

---

**TREATMENT OF FRINGE BENEFITS:**

For Foundation Regular Employees, this organization uses a fringe benefit rate which includes the costs of State unemployment, Retiree Medical, Cafeteria Plan and VEBA, and is applied to salaries and wages and budgeting and charging purposes for Federal projects. Actual costs are used for charging purposes for the following fringe benefits: FICA, WORKERS COMPENSATION, HEALTH/LIFE INSURANCE, DISABILITY, MEDICARE AND RETIREMENT.

For Foundation employment categories other than Foundation Regular Employees, the organization uses a fringe benefit rate which includes the costs of State Unemployment and is applied to salaries and wages for budgeting and charging purposes for Federal projects. Actual costs are used for charging purposes for the following fringe benefits: FICA, WORKERS COMPENSATION, AND MEDICARE.

For University Employees, a state calculated fringe benefit rate is used for budgeting purposes for Federal projects. Faculty are released to the Foundation when working on Federal projects, and fringe benefits are reimbursed by the Foundation to the University. The following fringe benefits are treated as direct costs: SUI, SDI, WORKERS COMPENSATION, HEALTH/LIFE INSURANCE, AND RETIREMENT.

**TREATMENT OF PAID ABSENCES**

For Foundation Regular Employees, the cost of Vacation and Other Paid Absences (OPA) are included in a fringe benefit rate and are not included in direct charges for salaries and wages. Charges for salaries and wages must exclude those paid to Foundation Regular Employees on Vacation or OPA.

For Foundation employment categories other than Foundation Regular Employees, Vacation and OPA are not provided. Thus, charges separate from salaries and wages are not made for this type of benefit.

For University Employees, Vacation and OPA are included in salaries and wages. Separate claims for these costs are not made. Faculty are released to the Foundation when working on Federal projects, and Vacation and OPA are reimbursed by the Foundation to the University as part of the normal charge for salaries and wages.

ORGANIZATION: Calif State Univ, Long Beach Research Fdn FKA: CSU,  
Long Beach & the Fdn

AGREEMENT DATE: 04/03/2020

---

**DEFINITION OF EQUIPMENT:**

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds \$5,000.

**NEXT PROPOSAL DUE DATE**

The next F&A proposal and fringe benefit proposal based on actual costs for fiscal year ending 06/30/2020 will be due no later than 12/31/2020.

This rate agreement updates the fringe benefit rate only.

---

Page 4 of 5

ORGANIZATION: Calif State Univ, Long Beach Research Fdn FKA: CSU,  
Long Beach & the Fdn

AGREEMENT DATE: 04/03/2020

---

**SECTION III: GENERAL**

---

**A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (i) only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the accounting rules

principles); (ii) the same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (iii) similar types of costs have been accorded consistent accounting treatments; and (iv) the information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rates would be subject to renegotiation at the discretion of the Federal Government.

#### **B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

#### **C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

#### **D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 100 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them ready notification of the Agreement.

#### **E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rates in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rates to the appropriate base to identify the proper amount of facilities and administrative costs allowable to those programs.

BY THE INSTITUTION:

Calif State Univ, Long Beach Research Fac PRA: CBU, Long Beach & the PSC

Brian M. Nowlin, Ed.D.

(NAME)

Chief Operating Officer

(TITLE)

04/07/2020

(DATE)

BY BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

04/03/2020

(DATE) 3743

RSO REPRESENTATIVE: Helen Fung

Telephone: (415) 437-7820

**CALIFORNIA STATE UNIVERSITY LONG BEACH AND RESEARCH FOUNDATION  
OFFICE OF RESEARCH AND SPONSORED PROGRAMS**

**SPONSORED PROGRAMS BUDGETING FOR FRINGE BENEFITS (FY 20-21)**

Actual fringe benefit costs, by employee, are charged to sponsored agreements. However, because of the variances among individual costs for health plans, etc., ORSP provides a fringe benefit rate for “BUDGETING” proposals. These rates are composite rates and will, in most cases, provide an adequate benefits budget to cover actual benefits costs charged. (However, prior actual experience is the best indicator of future costs, so budgets may be modified based upon documentable/justifiable historical data.)

ORSP budgets employee fringe benefits based on the employer (Research Foundation or CSULB) and time base (a 100% time base = 40 hours per week). The budgeted rate for each time base includes the following components:

Research Foundation Employees				CSULB Employees (Reimbursed)					
Temporary & Student Non-Benefitted	Part Time Regular (PTR) Benefitted	Full Time Regular (FTR) Benefitted	Additional Employment (Overload)	Staff	MPP	Librarians	Lecturers	Dept. Chair	Tenure Ten. Track Faculty (includes FERP)
0-74% Time Base	50% - 70% Time Base	75-100% Time Base	Faculty & CSULB Staff						
20 hrs. max/wk: Student Employee 28 hrs max/wk: Temporary Employee	20-28 hrs./wk	30-40 hrs/wk (Plus Grandfathered Benefitted PTR Staff)	(Max. 125% between University and all Auxiliaries)						
FICA <b>6.20%</b>	6.20%	<b>6.20%</b>	<b>6.20%</b>						
Medicare <b>1.45%</b>	1.45%	<b>1.45%</b>	<b>1.45%</b>						
Workers Comp <b>3.03%</b>	1.50%	<b>1.50%</b>	<b>1.20%</b>						
Pension	10.00%	<b>10%</b>							
**Health Ins cooled Benefits		<b>22%</b>							
<b>TOTAL</b>	<b>10.68%</b>	<b>42.45%</b>	<b>64.45%</b>	<b>8.85%</b>	<b>60.24%</b>	<b>57.45%</b>	<b>51.83%</b>	<b>45.03%</b>	<b>50.95%</b>
									<b>50.31%</b>

**\*Per CSULB Budget Office Effective 07/01/2020**

All other State employees not listed refer to:  
[http://daf.csulb.edu/offices/univ\\_svcs/budget/docs/fy20-21/benefits/index.html](http://daf.csulb.edu/offices/univ_svcs/budget/docs/fy20-21/benefits/index.html)

Fringe benefits must be budgeted in all employment categories. Student assistants and temporary non-benefitted employees should be budgeted using the figures noted in the 0 - 74% Time Base column (regardless of actual time base). Students employed by the Research Foundation are **NOT** FICA exempt, per the IRS.

Sponsored programs are charged the actual cost of the following fringe benefit components: FICA, Medicare, Pension and Health Insurance. Charges for Workers’ Compensation premiums are based on classification codes associated with each position. Charges to sponsored programs for Pooled Benefits are broken down for budgeting purposes as State Unemployment Insurance (SUI), VAC/OPA, and Retiree Medical Liability. Benefit costs for CSULB (reimbursed) employees are based on rates provided by the CSULB budget office. Please contact the Grants and Contracts Administrator for your project or the Pre Award Specialist in ORSP for clarification on the table above, as necessary.

Regular CSULB Research Foundation employees participate in pension after two (2) years of continuous service in an eligible category with the CSULB Research Foundation. Prior service within the CSU system is recognized for pension purposes if it occurred within the twelve (12) months prior to the employee’s appointment with CSULB Research Foundation.

The rates quoted herein represent budgeted figures only. *The various fringe benefit budget components may change periodically throughout the year; and this information will be updated.*

**NOTE:** Health Insurance costs may vary greatly across programs or centers based on the selection of coverage chosen by each employee in that unit.

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN: DATE: 03/16/2017  
 ORGANIZATION: FILING REF.: The preceding  
 Northern Arizona University agreement was dated  
 P.O. Box 4069 02/07/2013  
 Flagstaff, AZ 86011-4070

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: Facilities And Administrative Cost Rates**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

EFFECTIVE PERIOD

<b>TYPE</b>	<b>FROM</b>	<b>TO</b>	<b>RATE (%) LOCATION</b>	<b>APPLICABLE TO</b>
PRED.	07/01/2017	06/30/2021	52.00 On-Campus	Organized Research
PRED.	07/01/2017	06/30/2021	26.00 Off-Campus	Organized Research
PRED.	07/01/2017	06/30/2021	51.20 On-Campus	Instruction
PRED.	07/01/2017	06/30/2021	26.00 Off-Campus	Instruction
PRED.	07/01/2017	06/30/2021	30.90 On-Campus	Other Sponsored Activities
PRED.	07/01/2017	06/30/2021	26.00 Off-Campus	Other Sponsored Activities
PROV.	07/01/2021	Until Amended	Use same rates and conditions as those cited for fiscal year ending June 30, 2021.	

\*BASE

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and subgrants and subcontracts up to the first \$25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subgrant and subcontract in excess of \$25,000.

ORGANIZATION: Northern Arizona University

AGREEMENT DATE: 3/16/2017

---

## **SECTION II: SPECIAL REMARKS**

---

### **TREATMENT OF FRINGE BENEFITS:**

This organization charges the actual cost of each fringe benefit direct to Federal projects. However, it uses a fringe benefit rate which is applied to salaries and wages in budgeting fringe benefit costs under project proposals. The following fringe benefits are treated as direct costs:

FICA, WORKERS COMPENSATION, HEALTH/DENTAL INSURANCE, BASIC LIFE INSURANCE, UNEMPLOYMENT INSURANCE, LONG-TERM DISABILITY, PENSION PLAN, AND RETIREE ACCUMULATED SICK LEAVE.

### **TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

### **OFF-CAMPUS DEFINITION AND APPLICATION**

The off-campus rate is applicable to those projects conducted in facilities not owned or leased by the University. However, if the project is conducted in leased space and lease costs are directly charged to the project, then the off-campus rate must be used. A project is considered off-campus if more than 50% of its salaries and wages are incurred at an off-campus facility. If a project is determined to be off-campus, it shall be considered wholly off-campus. Separate on and off-campus rates will not be used for a single project.

### **DEFINITION OF EQUIPMENT**

Equipment is defined as tangible non-expendable personal property having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit.

The four-year extension of the indirect cost rate was granted in accordance with 2 CFR 200.414(g).

### **NEXT PROPOSAL DUE DATE**

A proposal based on actual costs for fiscal year ending 6/30/2020 will be due no later than 12/31/2021.

ORGANIZATION: Northern Arizona University  
AGREEMENT DATE: 3/16/2017

### SECTION III: GENERAL

#### A. LIMITATIONS:

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

#### B. ACCOUNTING CHANGES:

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

#### C. FIXED RATES:

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

#### D. USE BY OTHER FEDERAL AGENCIES:

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

#### E. OTHER:

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

Northern Arizona University

(INSTITUTION)

*Bjorn Flugstad*

(SIGNATURE)

*Bjorn Flugstad*

*VICE PRESIDENT, CFO*

(TITLE)

*3/29/17*

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

*Arif M. Karim -A*

Digitally signed by Arif M. Karim -A  
DN: c=US, o=U.S. Government, ou=HHS, ou=FSC,  
ou=People, cn=Arif M. Karim -A  
092342192003001003, i=2000212895  
Date: 2017.03.28 19:13:58 -05'00'

(SIGNATURE)

*Arif Karim*

(NAME)

Director, Cost Allocation Services

(TITLE)

3/16/2017

(DATE) 0159

HHS REPRESENTATIVE: *Helen Fung*

Telephone:

*(415) 437-7820*



Office of Sponsored Projects

PO Box 4130  
Flagstaff, AZ 86011-4130  
[www.nau.edu/research](http://www.nau.edu/research)

In accordance with Northern Arizona University's current College and Universities Rate Agreement (since March 16, 2017), NAU calculates fringe benefit rates individually.

This organization charges the actual cost of each fringe benefit to federal projects. However, it uses a fringe benefit rate which is applied to salaries and wages in budgeting fringe benefit costs under project proposals. The following fringe benefits are treated as direct costs:

FICA, WORKERS COMPENSATION, HEALTH/DENTAL INSURANCE, BASIC LIFE INSURANCE, UNEMPLOYMENT INSURANCE, LONG-TERM DISABILITY, PENSION PLAN, AND RETIRE ACCUMULATED SICK LEAVE.

Based upon institutional base salaries, NAU has applied the below fringe benefit rates toward this proposal:

Individual	Institutional Base Salary (2022-2023)	Fringe Benefit Rate (AY)	Fringe Benefit Rate (Summer)
Dr. Ed Smaglik	\$70,341	28.5%	15.2%
Dr. Brendan Russo	\$88,763	36.2%	15.2%
Dr. Steven Gehrke	\$63,378	15.7%	15.2%

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN: 86-0208787

DATE: 05/14/2020

ORGANIZATION:

Pima County Community College  
 4905D East Broadway Blvd.  
 Tucson, AZ 85709-1220

FILING REF.: The preceding  
 agreement was dated  
 11/20/2015

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: Facilities And Administrative Cost Rates**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

**EFFECTIVE PERIOD**

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2020	06/30/2024	42.00	On-Campus	All Programs
PROV.	07/01/2024	Until Amended			Use same rates and conditions as those cited for fiscal year ending June 30, 2024.

**\*BASE**

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of \$25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

ORGANIZATION: Pima County Community College

AGREEMENT DATE: 5/14/2020

---

---

**SECTION II: SPECIAL REMARKS**

---

**TREATMENT OF FRINGE BENEFITS:**

The fringe benefits are specifically identified to each employee and are charged individually as direct costs. The directly claimed fringe benefits are listed below.

**TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

**DEFINITION OF EQUIPMENT**

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds \$5,000.

The following fringe benefits are treated as direct costs:

FICA, AII, SDI, UNEMPLOYMENT COMPENSATION, HEALTH/DENTAL/GROUP LIFE INSURANCE, AND RETIREMENT.

**NEXT PROPOSAL DUE DATE**

A proposal based on actual costs for fiscal year ending 06/30/23, will be due no later than 12/31/23.

ORGANIZATION: Pima County Community College

AGREEMENT DATE: 5/14/2020

**SECTION III: GENERAL****A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

**B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

**C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

**D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

**E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

ON BEHALF OF THE FEDERAL GOVERNMENT:

Pima County Community College

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(INSTITUTION)

(AGENCY)

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

David Bea

(SIGNATURE)

(DATE)

(NAME)

Executive Vice Chancellor

(DATE)

(TITLE)

(DATE)

May 19, 2020

5/14/2020

(DATE)

(DATE)

5/14/2020

HHS REPRESENTATIVE:

Karen Wong

Telephone:

(415) 437-7820

# Pima College IDC Rate Agreement

Final Audit Report

2020-05-19

Created:	2020-05-19
By:	Agnes Maina (amaina@pima.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAAmxRUCx1Uid1kgVL2Xq7D5MFLv0nyb4Jd

## "Pima College IDC Rate Agreement" History

 Document created by Agnes Maina (amaina@pima.edu)

2020-05-19 - 1:52:07 PM GMT- IP address: 68.99.136.226

 Document emailed to David Bea (dbea@pima.edu) for signature

2020-05-19 - 1:53:57 PM GMT

 Email viewed by David Bea (dbea@pima.edu)

2020-05-19 - 1:56:06 PM GMT- IP address: 107.2.29.61

 Document e-signed by David Bea (dbea@pima.edu)

Signature Date: 2020-05-19 - 1:57:07 PM GMT - Time Source: server- IP address: 107.2.29.61

 Signed document emailed to Agnes Maina (amaina@pima.edu), David Bea (dbea@pima.edu) and Keri Hill (khill1@pima.edu)

2020-05-19 - 1:57:07 PM GMT

## Budgeted Fringe Rates

### Budgeted Fringe Rates for FY 2022/23 (as of 07/01/22)

Category	FY 23 Rate	FY 22 Rate
Administrators	26.0 %	27.0 %
Faculty	31.0 %	35.0 %
Exempt Staff	33.0 %	34.0 %
Non-Exempt Staff	38.0 %	42.0 %
Public Safety (College Police)	65.0 %	66.0 %
Public Safety Other Comp	49.0 %	49.0 %
Adjunct Faculty	13.0 %	13.0 %
Additional Comp Faculty	19.5 %	19.5 %
Other Comp & Temporary Staff	19.5 %	19.5 %

## COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN:

DATE:06/25/2020

ORGANIZATION:

FILING REF.: The preceding  
agreement was dated  
10/24/2019

University of California (UCB)  
 Berkeley Campus  
 Office of President  
 111 Franklin St., 10th Floor  
 Oakland, CA 94607-5200

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

EFFECTIVE PERIOD

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
FINAL	07/01/2016	06/30/2019	57.00	On-Campus	Org Res (1)
PRED.	07/01/2019	06/30/2020	57.00	On-Campus	Org Res (1)
PRED.	07/01/2020	06/30/2021	59.00	On-Campus	Org Res (1)
PRED.	07/01/2021	06/30/2022	60.50	On-Campus	Org Res (1)
PRED.	07/01/2016	06/30/2022	26.00	Off-Campus	Org Res (1)
FINAL	07/01/2016	06/30/2019	50.50	On-Campus	Instruction
PRED.	07/01/2019	06/30/2022	48.00	On-Campus	Instruction
PRED.	07/01/2016	06/30/2022	26.00	Off-Campus	Instruction
FINAL	07/01/2016	06/30/2019	40.00	On-Campus	Other Spons Act
PRED.	07/01/2019	06/30/2022	40.00	On-Campus	Other Spons Act
PRED.	07/01/2016	06/30/2022	16.50	Off-Campus	Other Spons Act
FINAL	07/01/2016	06/30/2019	40.00	On-Campus	SSL (2)
PRED.	07/01/2019	06/30/2022	34.00	On-Campus	SSL (2)
FINAL	07/01/2016	06/30/2019	24.50	Off-Campus	SSL (2)
PRED.	07/01/2019	06/30/2022	24.00	Off-Campus	SSL (2)
PRED.	07/01/2016	06/30/2022	8.00	Off-Campus	IPAA (3)

ORGANIZATION: University of California (UCB) Berkeley Campus

AGREEMENT DATE: 6/25/2020

---

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PROV.	07/01/2022	Until Amended			Use same rates and conditions as those cited for fiscal year ending June 30, 2022.

**\*BASE**

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials, supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships, participant support costs and the portion of each subaward in excess of \$25,000.

- (1) Organized Research
- (2) Space Sciences Laboratory (Research)
- (3) Intergovernmental Personnel Act Agreement

ORGANIZATION: University of California (UCB) Berkeley Campus

AGREEMENT DATE: 6/25/2020

---

**SECTION I: FRINGE BENEFIT RATES\*\***

---

<b><u>TYPE</u></b>	<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>RATE (%)</u></b>	<b><u>LOCATION</u></b>	<b><u>APPLICABLE TO</u></b>
FIXED	7/1/2020	6/30/2021	35.90	All	Academic
FIXED	7/1/2020	6/30/2021	16.40	All	Limited Benefits
FIXED	7/1/2020	6/30/2021	5.50	All	No Eligibility
FIXED	7/1/2020	6/30/2021	45.90	All	Staff
FIXED	7/1/2020	6/30/2021	2.40	All	Student
PROV.	7/1/2021	6/30/2023			Use same rates and conditions as those cited for fiscal year ending June 30, 2021.

## \*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:

Salaries and wages excluding vacation and catastrophic leave.

ORGANIZATION: University of California (UCB) Berkeley Campus

AGREEMENT DATE: 6/25/2020

---

**SECTION II: SPECIAL REMARKS**

---

**TREATMENT OF FRINGE BENEFITS:**

Beginning 07/01/19, fringe benefits based on the UC Path methodology are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate(s) are:

BENEFITS ADMINISTRATION; MEDICAL, DENTAL, DISABILITY, LIFE, UNEMPLOYMENT, VISION, AND WORKERS' COMPENSATION INSURANCE; EMPLOYEES SUPPORT PROGRAMS; FICA AND DISABILITY TAXES; INCENTIVE AWARD PROGRAMS; RETIREE HEALTH BENEFITS; AND RETIREMENT BENEFITS.

This organization charges the actual costs of Student Tuition Remission per employee direct to Federal projects for all Student employees whose salary and wages is charged direct to Federal projects.

Prior to 07/01/19, fringe benefits based on the UC Berkeley campus methodology were charged using the rate(s) listed in the Fringe Benefits Section of the prior Agreements. The fringe benefits included in the rate(s) are:

FICA, DISABILITY, LIFE INSURANCE, HEALTH INSURANCE, RETIREMENT, UNEMPLOYMENT AND WORKERS COMPENSATION.

**TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

ORGANIZATION: University of California (UCB) Berkeley Campus

AGREEMENT DATE: 6/25/2020

---

**DEFINITION OF EQUIPMENT**

Equipment is defined as tangible nonexpendable personal property (including information technology systems) having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit.

**DEFINITION OF ON-CAMPUS, OFF-CAMPUS AND SPECIAL RATES**

**DEFINITION OF OFF-CAMPUS RATE**

The off-campus rate is applicable to those projects conducted at facilities not owned or leased by the University. However, if the project is conducted in leased space and lease costs are directly charged to the project, then the off-campus rate must be used.

**PROJECTS CONDUCTED ENTIRELY ON-CAMPUS OR ENTIRELY OFF-CAMPUS:**

Projects conducted entirely on-campus or entirely off-campus will be applied the on-campus or off-campus rate respectively.

**PROJECTS CONDUCTED PARTIALLY OFF-CAMPUS AND PARTIALLY ON-CAMPUS:**

If the project involves work at both on-campus and off-campus sites, either the on-campus or off-campus rate generally should be applied, consistent with where the majority of the work is to be performed. Salary cost is generally accepted as a measure of work performed in terms of the total project.

**USE OF BOTH ON-CAMPUS AND OFF-CAMPUS RATES**

The use of both on-campus and off-campus rates for a given project may be justified if both of the respective rates can clearly be identified with a significant portion of salaries and wages of the project. For purposes of this provision, significant is defined as approximately 25% or more of the total costs and a project's total salary and wage costs exceed \$250,000.

**OTHER SPECIAL RATES**

These rates apply only to the facility or program to which they are identified. If any additional special rates become necessary the establishment of such rates should be coordinated through the cognizant negotiation agency.

**NEXT PROPOSAL DUE DATE**

Your next F&A proposal based on actual costs for the fiscal year ending 6/30/21 is due in our office by 12/31/21. Your next fringe benefit rate proposal based on actual costs for the fiscal year ending 6/30/20 is due in our office by 12/31/20.

This agreement updates fringe benefits only.

ORGANIZATION: University of California (UCB) Berkeley Campus

AGREEMENT DATE: 6/25/2020

**SECTION III: GENERAL****A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

**B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

**C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

**D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

**E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of California (UCB) Berkeley Campus

(INSTITUTION)

Peggy Arrivas

(SIGNATURE)

Peggy Arrivas

(NAME)

Systemwide Controller

(TITLE)

6/30/20

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Arif Karim

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

6/25/2020

(DATE) 7005

HHS REPRESENTATIVE: Patrick SmithTelephone: (415) 437-7820

## Office of the Chief Financial Officer

### You are here

- [Home](#)
- [About Us](#)
- [Financial Planning & Analysis](#)
- [Budget and Financial Operations](#)
- Composite Benefit Rates (CBR)

## Composite Benefit Rates (CBR) Overview

Composite benefit rates are developed in order to cover the costs of fringe benefits offered by the university. The rate is determined by creating a pool of benefit costs and dividing by a salary base. The rates are negotiated by UCOP with the federal government one fiscal year at a time. This rate represents the percentage that will be assessed against the employee's salary, and this amount will post to the same department and fund to which the individual employee's salary posts.

This year there are changes to the way Composite Benefit Rates (CBR) are calculated and approved. In previous years, we worked directly with the Department of Health and Human Services (DHHS) to set the approved rates. Now that we have implemented UCPATH, rather than work directly with DHHS, we followed a standard process for calculating rates led by UCOP and adopted their agreements with the federal government.

### Questions

If you have questions about Composite Benefit Rates, please contact Hervé Bruckert from the Central Resource Management Team  
at [centralresourcemanagement@berkeley.edu](mailto:centralresourcemanagement@berkeley.edu)(link sends e-mail)

### FY2021-22 Composite Benefit Rates

	Approved Rates (UCPath Rates)		Submitted, awaiting federal approval		Projections for Planning Purposes		
CBR Rate Group	FY20	FY21	FY22	FY23	FY24	FY25	FY26
Academic	36.5%	35.9%	35.9%	35.4%	35.4%	35.4%	35.4%

	Approved Rates (UCPath Rates)		Submitted, awaiting federal approval		Projections for Planning Purposes		
Staff	45.5%	45.9%	43.8%	42.8%	42.8%	42.8%	42.8%
Limited (this includes Postdocs)	17.4%	16.4%	14.4%	14.0%	14.0%	14.0%	14.0%
Employees with No Benefit Eligibility	5.6%	5.5%	4.2%	5.3%	5.3%	5.3%	5.3%
Students	2.4%	2.4%	2.6%	2.8%	2.8%	2.8%	2.8%

Please note that future year rate estimates are for planning purposes only (e.g. multi-year budgeting, financial aid planning, contract and grant proposal submissions, etc.) because rates for years beyond FY2020-21 are subject to change. FY2021-22 budgeted CBR rates have been loaded in UCPath but have not yet been approved by the Federal Government.

- [Earn Codes CBR exclusion](#)
- [UC Berkeley DOS to earn code mapping](#)

**Cognizant federal agency**

U.S. Department of Health and Human Services  
Arif M. Karim , Director  
415-437-7820

## COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 94-6036494

DATE: 06/28/2021

ORGANIZATION:

FILING REF.: The preceding  
agreement was dated  
08/13/2019University of California (UCD)  
Davis Campus

Davis, CA

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

### **SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

#### EFFECTIVE PERIOD

<b>TYPE</b>	<b>FROM</b>	<b>TO</b>	<b>RATE (%)</b>	<b>LOCATION</b>	<b>APPLICABLE TO</b>
FINAL	07/01/2018	06/30/2020	57.00	On-Campus	Organized Res.
PRED.	07/01/2020	06/30/2022	57.00	On-Campus	Organized Res.
PRED.	07/01/2022	06/30/2023	59.50	On-Campus	Organized Res.
PRED.	07/01/2023	06/30/2024	60.00	On-Campus	Organized Res.
PRED.	07/01/2024	06/30/2025	61.00	On-Campus	Organized Res.
FINAL	07/01/2018	06/30/2020	26.00	Off-Campus	Organized Res.
PRED.	07/01/2020	06/30/2025	26.00	Off-Campus	Organized Res.
FINAL	07/01/2018	06/30/2020	39.00	On-Campus	Other Spons Act
PRED.	07/01/2020	06/30/2022	39.00	On-Campus	Other Spons Act
PRED.	07/01/2022	06/30/2025	42.50	On-Campus	Other Spons Act
FINAL	07/01/2018	06/30/2020	25.00	Off-Campus	Other Spons Act
PRED.	07/01/2020	06/30/2022	25.00	Off-Campus	Other Spons Act
PRED.	07/01/2022	06/30/2025	26.00	Off-Campus	Other Spons Act
FINAL	07/01/2018	06/30/2020	50.00	On-Campus	Instruction
PRED.	07/01/2020	06/30/2025	50.00	On-Campus	Instruction
FINAL	07/01/2018	06/30/2020	26.00	Off-Campus	Instruction
PRED.	07/01/2020	06/30/2025	26.00	Off-Campus	Instruction
FINAL	07/01/2018	06/30/2020	22.70	Primate Ctr	Core Grant (1)
PRED.	07/01/2020	06/30/2022	22.70	Primate Ctr	Core Grant (1)

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2022	06/30/2025	25.20	Primate Ctr	Core Grant (1)
FINAL	07/01/2018	06/30/2020	54.40	Primate Ctr	Non-Core Fed(1)
PRED.	07/01/2020	06/30/2022	54.40	Primate Ctr	Non-Core Fed(1)
PRED.	07/01/2022	06/30/2025	57.80	Primate Ctr	Non-Core Fed(1)
FINAL	07/01/2018	06/30/2020	8.00	Off-Campus	IPA (2)
PRED.	07/01/2020	06/30/2022	8.00	Off-Campus	IPA (2)
PRED.	07/01/2022	06/30/2025	10.00	Off-Campus	IPA (2)
PROV.	07/01/2025	Until Amended			Use same rates and conditions as those cited for fiscal year ending June 30, 2025.

**\*BASE**

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of \$25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

(1) Primate Center - see Section II: Special Remarks.

(2) Intergovernmental Personnel Act Agreements.

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

**SECTION I: FRINGE BENEFIT RATES\*\***

<b><u>TYPE</u></b>	<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>RATE (%)</u></b>	<b><u>LOCATION</u></b>	<b><u>APPLICABLE TO</u></b>
FIXED	7/1/2020	6/30/2021	9.40 (1)		UCD (A)
FIXED	7/1/2020	6/30/2021	38.10 (1)		UCD (B)
FIXED	7/1/2020	6/30/2021	25.50 (1)		UCD (C)
FIXED	7/1/2020	6/30/2021	3.60 (1)		UCD (D)
FIXED	7/1/2020	6/30/2021	34.10 (1)		UCD (E)
FIXED	7/1/2020	6/30/2021	14.80 (1)		UCD (F)
FIXED	7/1/2020	6/30/2021	23.50 (1)		UCD (G)
FIXED	7/1/2020	6/30/2021	65.10 (1)		UCD (H)
FIXED	7/1/2020	6/30/2021	50.90 (1)		UCD (I)
FIXED	7/1/2020	6/30/2021	1.90 (1)		UCD (J)
FIXED	7/1/2020	6/30/2021	42.10 (2)		ANR (A)
FIXED	7/1/2020	6/30/2021	4.60 (2)		ANR (B)
FIXED	7/1/2020	6/30/2021	14.90 (2)		ANR (C)
FIXED	7/1/2020	6/30/2021	52.10 (2)		ANR (D)
FIXED	7/1/2020	6/30/2021	63.80 (2)		ANR (E)
FIXED	7/1/2020	6/30/2021	1.60 (2)		ANR (F)

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

---

PROV. 7/1/2021 6/30/2022

Use same rates  
and conditions  
as those cited  
for fiscal  
year ending  
June 30, 2021.

\*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

---

Salaries and Wages excluding vacation and catastrophic leave.

- (1) All UC Davis locations except for UC Davis Medical Center.  
(2) UC Division of Agriculture and Natural Resources (ANR) activities at UC Davis locations.

UCD (A) Faculty Summer Salary.

UCD (B) Non-Healthcomp Faculty, Academic Appointments, Management and Senior Professional, and Safety Officers.

UCD (C) Healthcomp Faculty, School of Health Staff Physicians, and University Senior Management Group.

UCD (D) Employees not eligible for benefits.

UCD (E) Nurses, physician assistants and other campus physicians.

UCD (F) Employees eligible for partial benefits.

UCD (G) Postdoctoral employees.

UCD (H) Employees in the service bargaining unit.

UCD (I) Exempt and Non-Exempt Staff eligible for full benefits.

UCD (J) Student employees.

ANR (A) Employees with Academic Appointments or in Management & Senior Professional category eligible for full benefits.

ANR (B) Employees that are not eligible for full benefits, and Faculty and Academic Appointments eligible for Faculty Summer Salary working in the summer session.

ANR (C) Postdoctoral employees.

ANR (D) Exempt Staff eligible for full benefits.

ANR (E) Non-Exempt Staff eligible for full benefits.

ANR (F) Student employees.

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

---

## **SECTION II: SPECIAL REMARKS**

---

### **TREATMENT OF FRINGE BENEFITS:**

#### **TREATMENT OF FRINGE BENEFITS:**

The fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The following fringe benefits are included in the fringe benefit rate(s):

BENEFITS ADMINISTRATION, DENTAL BENEFITS, DISABILITY BENEFITS, EMPLOYEE SUPPORT PROGRAMS, FICA TAX, INCENTIVE AWARD PROGRAMS, LIFE INSURANCE, MEDICAL BENEFITS, RETIREE HEALTH BENEFITS, RETIREMENT BENEFITS, SENIOR MANAGEMENT SUPPLEMENT, UNEMPLOYMENT INSURANCE, VISION BENEFITS, WORKERS' COMPENSATION.

### **TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay & other paid absences are included in salaries & wages and are claimed on grants, contracts and other agreements as part of the normal costs for salaries & wages. Separate claims for the costs of these paid absences are not made.

### **DEFINITION OF EQUIPMENT**

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds \$5,000.

### **DEFINITION OF ON-CAMPUS, OFF-CAMPUS AND SPECIAL RATES**

**DEFINITION OF OFF-CAMPUS RATE:** The off-campus rate is applicable to those projects conducted at facilities not owned or leased by the University. However, if the project is conducted in leased space and lease costs are directly charged to the project, then the off-campus rate must be used.

**PROJECTS CONDUCTED ENTIRELY ON-CAMPUS OR ENTIRELY OFF-CAMPUS:** Projects conducted entirely on-campus or entirely off-campus will be applied the on-campus or off-campus rate respectively.

**PROJECTS CONDUCTED PARTIALLY OFF-CAMPUS AND PARTIALLY ON-CAMPUS:** If the project involves work at both on-campus and off-campus sites, either the on-campus or off-campus rate generally should be applied, consistent with where the majority of the work is to be performed. Salary cost is generally accepted as a measure of work performed in terms of the total project.

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

---

USE OF BOTH ON-CAMPUS AND OFF-CAMPUS RATES: The use of both on-campus and off-campus rates for a given project may be justified if both of the respective rates can clearly be identified with a significant portion of salaries and wages of the project. For purposes of this provision, significant is defined as approximately 25% or more of the total costs and a project's total salary and wage costs exceed \$250,000.

OTHER SPECIAL RATES: These rates apply only to the facility or program to which they are identified. If any additional special rates become necessary the establishment of such rates should be coordinated through the cognizant negotiation agency.

PRIMATE CENTER RATES: The California National Primate Research Center (CNPRC) Non-Core Federal rate (57.8%) is applied only to the direct research costs of Federally sponsored awards excluding the National Center for Research Resources (NCRR) Core Grant. All recoveries from application of this rate represent University F&A expenditures allocated to the CNPRC (25.2%) and CNPRC-specific F&A expenditures (32.6%).

Additionally, the university has developed a Non-Federal CNPRC rate (90.1%) which is applied only to non-Federal research expenditures.

The Non-Core Federal and Non-Federal rates are considered additive to the Core Grant rate.

#### NEXT PROPOSAL DUE DATE

An F&A Costs Rates proposal based on actual costs for fiscal year ending 06/30/24, will be due no later than 12/31/24. A fringe benefit rate proposal based on actual costs for fiscal year ending 6/30/20, is currently under review.

ORGANIZATION: University of California (UCD) Davis Campus

AGREEMENT DATE: 6/28/2021

---

### **SECTION III: GENERAL**

---

**A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

**B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

**C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

**D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

**E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of California (UCD) Davis Campus

(INSTITUTION)

(SIGNATURE)

Peggy Arrivas

(NAME)

Systemwide Controller

(TITLE)

6/29/2021

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Arif M. Karim -S  Digitally signed by Arif M. Karim -S  
Date: 2021.06.28 12:59:12 -05'00'

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

6/28/2021

(DATE) 7006

HHS REPRESENTATIVE: Jeffrey Warren

Telephone:

(415) 437-7820

**UNIVERSITY OF CALIFORNIA DAVIS**  
**FACILITIES AND ADMINISTRATIVE COST RATES**  
**FOR THE PERIOD JULY 1, 2018 THROUGH JUNE 30, 2025**

<b>ORGANIZED RESEARCH</b>						
	JULY 1, 2018 THROUGH JUNE 30, 2022		JULY 1, 2022 THROUGH JUNE 30, 2023		JULY 1, 2023 THROUGH JUNE 30, 2024	
	ON-CAMPUS	OFF-CAMPUS	ON-CAMPUS	OFF-CAMPUS	ON-CAMPUS	OFF-CAMPUS
BUILDING DEPRECIATION	5.90%	6.50%	6.70%	7.00%		
EQUIPMENT	3.50%	3.40%	3.40%	3.40%		
BUILDING INTEREST	4.80%	4.10%	4.10%	4.10%		
OPERATIONS & MAINT	15.00%	17.30%	17.50%	18.20%		
LIBRARY	1.80%	2.20%	2.30%	2.30%		
GENERAL ADMIN	5.70%	5.20%	5.20%	5.20%		
DEPT ADMIN	16.80%	17.00%	17.00%	17.00%		
SPON PROJ ADMIN	3.50%	3.80%	3.80%	3.80%		
STUDENT SERV ADMIN	0.00%	0.00%	0.00%	0.00%		
ADMIN COMPONENTS	26.00%	<u>31.00%</u>	<u>35.50%</u>	<u>34.00%</u>	<u>26.00%</u>	<u>35.00%</u>
	57.00%	26.00%	59.50%	26.00%	60.00%	26.00%
					61.00%	26.00%

<b>OTHER SPONSORED ACT</b>						
	JULY 1, 2018 THROUGH JUNE 30, 2022		JULY 1, 2022 THROUGH JUNE 30, 2025		JULY 1, 2018 THROUGH JUNE 30, 2022	
	ON-CAMPUS	OFF-CAMPUS	ON-CAMPUS	OFF-CAMPUS	ON-CAMPUS	OFF-CAMPUS
BUILDING DEPRECIATION	2.70%	3.50%	4.50%	4.50%		
EQUIPMENT	1.30%	1.70%	1.20%	1.20%		
BUILDING INTEREST	1.30%	1.50%	2.50%	2.50%		
OPERATIONS & MAINT	8.00%	8.70%	9.10%	9.10%		
LIBRARY	0.70%	1.10%	6.70%	6.70%		
GENERAL ADMIN	5.50%	5.60%	5.00%	5.00%		
DEPT ADMIN	16.20%	16.70%	11.00%	11.00%		
SPON PROJ ADMIN	3.30%	3.70%	2.10%	2.10%		
STUDENT SERV ADMIN	0.00%	0.00%	7.90%	7.90%		
ADMIN COMPONENTS	25.00%	<u>14.00%</u>	<u>25.00%</u>	<u>26.00%</u>	<u>24.00%</u>	<u>26.00%</u>
TOTAL	39.00%	25.00%	42.50%	26.00%	50.00%	26.00%

Reflects projections of Appendix A Costs identification and  
Assignment and Rate determination for institutions of Higher Education (ES) C.8. dated December 26, 2013.

**EXHIBIT A**  
**PAGE 2 OF 2**

**UNIVERSITY OF CALIFORNIA DAVIS**  
**FACILITIES AND ADMINISTRATIVE COST RATES**  
**FOR THE PERIOD JULY 1, 2018 THROUGH JUNE 30, 2025**

	<b>PRIMATE CENTER</b>		<b>PRIMATE CENTER</b>		<b>INTER-GOV PERSONNEL ACT</b>		<b>INTER-GOV PERSONNEL ACT</b>	
	JULY 1, 2018 THROUGH JUNE 30, 2022	JULY 1, 2022 THROUGH JUNE 30, 2025	JULY 1, 2018 THROUGH JUNE 30, 2025	CORE GRANT NON-CORE FED	JULY 1, 2018 THROUGH JUNE 30, 2022	OFF-CAMPUS	JULY 1, 2022 THROUGH JUNE 30, 2025	OFF-CAMPUS
BUILDING DEPRECIATION	2.10%	3.60%	2.70%	3.80%	0.00%	0.00%	0.00%	0.00%
EQUIPMENT	0.90%	2.00%	1.60%	2.20%	0.00%	0.00%	0.00%	0.00%
BUILDING INTEREST	0.20%	0.20%	0.70%	0.70%	0.00%	0.00%	0.00%	0.00%
OPERATIONS & MAINT	8.80%	22.90%	9.20%	25.10%	0.00%	0.00%	0.00%	0.00%
LIBRARY	0.50%	0.50%	0.50%	0.50%	0.00%	0.00%	0.00%	0.00%
GENERAL ADMIN	6.20%	6.20%	5.40%	5.40%	4.50%	4.50%	5.40%	5.40%
DEPT ADMIN	0.00%	15.00%	0.00%	15.00%	0.00%	0.00%	0.00%	0.00%
SPON PROJ ADMIN	4.00%	4.00%	5.10%	5.10%	3.50%	3.50%	4.60%	4.60%
STUDENT SERV ADMIN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL	22.70%	54.40%	25.20%	57.80%	8.00%	8.00%	10.00%	10.00%

Reflects projections of Appendix to Part 200 of Uniform Guidance indirect (F A) Costs identification and Assignment and Rate determination for institutions of higher Education ( Es) C.8. dated December 26 2013.

CONCUR:

(SIGNATURE)

EVP-CFO

TITLE

7/1/2021

DATE

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN:

DATE: 05/29/2019

ORGANIZATION:

FILING REF.: The preceding  
agreement was dated  
04/27/2011University of California (UCI)  
Irvine Campus

, CA

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: Facilities And Administrative Cost Rates**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

**EFFECTIVE PERIOD**

<b>TYPE</b>	<b>FROM</b>	<b>TO</b>	<b>RATE (%)</b>	<b>LOCATION</b>	<b>APPLICABLE TO</b>
PRED.	07/01/2016	06/30/2018	54.50	On-Campus	Organized Research
PRED.	07/01/2018	06/30/2019	55.00	On-Campus	Organized Research
PRED.	07/01/2019	06/30/2020	56.00	On-Campus	Organized Research
PRED.	07/01/2020	06/30/2021	57.00	On-Campus	Organized Research
PRED.	07/01/2016	06/30/2021	26.00	Off-Campus	Organized Research
PRED.	07/01/2016	06/30/2018	46.00	On-Campus	Instruction
PRED.	07/01/2018	06/30/2021	47.50	On-Campus	Instruction
PRED.	07/01/2016	06/30/2021	26.00	Off-Campus	Instruction
PRED.	07/01/2016	06/30/2018	37.50	On-Campus	Other Sponsored Activities
PRED.	07/01/2018	06/30/2021	43.50	On-Campus	Other Sponsored Activities
PRED.	07/01/2016	06/30/2021	26.00	Off-Campus	Other Sponsored Activities

ORGANIZATION: University of California (UCI) Irvine Campus  
 AGREEMENT DATE: 5/29/2019

---

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%) LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2016	06/30/2021	10.00 Off-Campus	Intergovernmental Personnel Act
PROV.	07/01/2021	Until Amended	Use same rates and conditions as those cited for fiscal year ending June 30, 2021.	

\*BASE

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and subgrants and subcontracts up to the first \$25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subgrant and subcontract in excess of \$25,000.

See Special Remarks regarding Genomic Arrays.

ORGANIZATION: University of California (UCI) Irvine Campus  
AGREEMENT DATE: 5/29/2019

---

**SECTION II: SPECIAL REMARKS**

---

**TREATMENT OF FRINGE BENEFITS:**

This organization charges the actual cost of each fringe benefit per employee direct to Federal projects for all employees whose salary and wages is charged direct to Federal projects. However, for the purpose of budgeting fringe benefit costs under project proposals, the organization uses an average fringe benefit rate which is applied to budgeted salaries and wages. The following fringe benefits are charged direct:

OASDI, FICA, RETIREMENT PLAN, HEALTH/DENTAL/OPTICAL INSURANCE, WORKERS COMPENSATION, UNEMPLOYMENT INSURANCE, NON-INDUSTRIAL DISABILITY INSURANCE, LIFE INSURANCE, ANNUITANT HEALTH AND DENTAL INSURANCE, INCENTIVE AWARD PROGRAMS, EMPLOYEE SUPPORT PROGRAM, AND TUITION/FEE REMISSION OF CERTAIN STUDENT EMPLOYEES.

**TREATMENT OF PAID ABSENCES**

Vacation leave costs are charged on the accrual basis of accounting as an assessment to payroll. All other leave costs, including sick, holiday, and other leave costs (e.g., jury duty) are charged on the cash basis of accounting. Leave costs other than vacation are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims for the costs of these paid absences are not made. Leave costs are allocated to direct and/or indirect objectives on a prorated basis consistent with the allocation of the employee's salary and wages. Sabbatical leave costs are not charged to sponsored agreements.

ORGANIZATION: University of California (UCI) Irvine Campus  
AGREEMENT DATE: 5/29/2019

---

**DEFINITION OF OFF-CAMPUS RATE**

The off-campus rate is applicable to those projects conducted at facilities not owned or leased by the University. However, if the project is conducted in leased space and lease costs are directly charged to the project, then the off-campus rate must be used.

**PROJECTS CONDUCTED ENTIRELY ON-CAMPUS OR ENTIRELY OFF-CAMPUS**

Projects conducted entirely on-campus or entirely off-campus will be applied the on-campus or off-campus rate respectively.

**PROJECTS CONDUCTED PARTIALLY OFF-CAMPUS AND PARTIALLY ON-CAMPUS**

If the project involves work at both on-campus and off-campus sites, either the on-campus or off-campus rate generally should be applied, consistent with where the majority of the work is to be performed. Salary cost is generally accepted as a measure of work performed in terms of the total project.

**USE OF BOTH ON-CAMPUS AND OFF-CAMPUS RATES**

The use of both on-campus and off-campus rates for a given project may be justified if both of the respective rates can clearly be identified with a significant portion of salaries and wages of the project. For purposes of this provision, significant is defined as approximately 25% or more of the total costs and a project's total salary and wage costs exceed \$250,000.

**OTHER SPECIAL RATES**

These rates apply only to the facility or program to which they are identified. If any additional special rates become necessary the establishment of such rates should be coordinated through the cognizant negotiation agency.

**GENOMIC ARRAYS**

The NIH policy on indirect costs pertaining to Genomic Arrays (NOT-OD-10-097) is effective as of 05/13/10.

**DEFINITION OF EQUIPMENT**

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds \$5,000.

**NEXT PROPOSAL DUE DATE**

A proposal based on actual costs for fiscal year ending 06/30/2020 will be due no later than 12/31/2020.

ORGANIZATION: University of California (UCI) Irvine Campus  
 AGREEMENT DATE: 5/29/2019

### **SECTION III: GENERAL**

#### **A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

#### **B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

#### **C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

#### **D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

#### **E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of California (UCI) Irvine Campus

(INSTITUTION)

(SIGNATURE)

Nathan Brostrom

(NAME)

EVP - Chief Financial Officer

(TITLE)

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Arif M. Karim -S

Digitally signed by Arif M. Karim -S  
 Dte: 06/04/2019 16:30:16-05'00  
 Org: U.S. Government, cu=HHS, ou=PSL  
 ou=People, cn=Arif M. Karim -S  
 0.9.2342.19200300.1003.1-e2d00212893  
 Date: 2019-06-04 16:30:16-05'00

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

5/16/2019

(DATE) 7007

HHS REPRESENTATIVE: Helen Fung

Telephone: (415) 437-7820

## EXHIBIT A

UNIVERSITY OF CALIFORNIA, IRVINE  
 FACILITIES AND ADMINISTRATIVE COST RATES  
 FOR THE PERIOD JULY 1, 2016 TO JUNE 30, 2021

		ORGANIZED RESEARCH				OTHER SPONSORED ACTIVITIES				Intergovernmental Personnel Act	
		July 1, 2018 - June 30, 2019		July 1, 2019 - June 30, 2020		July 1, 2020 - June 30, 2021		July 1, 2018 - June 30, 2018		July 1, 2018 - June 30, 2019	
		On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus
BUILDING DEPRECIATION		5.90%		9.10%		9.40%		9.70%		6.00%	
BUILDING INTEREST		6.70%		5.60%		5.80%		2.80%		2.80%	
EQUIPMENT DEPRECIATION		3.30%		2.70%		9.80%		10.20%			
OPERATIONS & MAINTENANCE		11.70%		9.50%		2.20%					
LIBRARY		0.90%		2.10%		5.30%		5.30%		2.30%	
GENERAL ADMINISTRATION		4.30%		5.30%		17.10%		17.10%		5.30%	
DEPARTMENT ADMINISTRATION		19.00%		17.10%		3.50%		3.50%		17.10%	
SPONSORED PROJECTS ADMINISTRATION		2.50%		3.50%		0.10%		0.10%		3.50%	
STUDENT SERVICES ADMINISTRATION		0.20%		0.10%		26.00%		26.00%		0.10%	
ADMINISTRATION COMPONENTS*		26.00%		26.00%		55.00%		56.00%		26.00%	
TOTAL		54.50%						57.00%			

		INSTRUCTION AND DEPARTMENTAL RESEARCH				OTHER SPONSORED ACTIVITIES				Intergovernmental Personnel Act	
		July 1, 2018 - June 30, 2021		July 1, 2016 - June 30, 2018		July 1, 2018 - June 30, 2021		July 1, 2018 - June 30, 2018		July 1, 2016 - June 30, 2021	
		On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus	On-Campus	Off-Campus
BUILDING DEPRECIATION		4.00%		5.30%		1.80%		3.30%		1.30%	
BUILDING INTEREST		2.20%		3.50%		1.30%		1.30%		1.90%	
EQUIPMENT DEPRECIATION		0.90%		0.70%		1.50%		1.50%		8.50%	
OPERATIONS & MAINTENANCE		4.60%		6.40%		5.40%		2.50%		4.40%	
LIBRARY		8.30%		5.60%		1.50%					
GENERAL ADMINISTRATION		4.30%		3.00%		4.30%		4.40%		4.40%	
DEPARTMENT ADMINISTRATION		19.00%		12.20%		12.20%		19.00%		17.40%	
SPONSORED PROJECTS ADMINISTRATION		2.50%		2.30%		2.50%		2.50%		4.00%	
STUDENT SERVICES ADMINISTRATION		0.20%		0.20%		8.50%		0.20%		0.20%	
ADMINISTRATION COMPONENTS*		26.00%		26.00%		26.00%		26.00%		26.00%	
TOTAL		46.00%				47.50%		37.50%		43.50%	

\*Reflects provisions of Appendix III to Part 200 of Uniform Guidance - Indirect (F&A) Costs: Identification and Assumption, and Rate Determination for Institutions of Higher Education (IHEs), C.B. dated September 30, 2015.

CONCUR:

{SIGNATURE}

EVP - Chief Financial Officer

TITLE

6/13/19

DATE

**Richard L Coulon**

Interim Chief Financial Officer and Vice Chancellor  
 Division of Finance and Administration  
 455 Aldrich Hall, Irvine, CA 92697-1025

December 14, 2021

**DEANS**  
**VICE CHANCELLORS**  
**VICE PROVOSTS**  
**ASSOCIATE CHANCELLORS**  
**CHAIR, ACADEMIC SENATE**  
**EXECUTIVE DIRECTOR, APPLIED INNOVATION**  
**UNIVERSITY LIBRARIAN**

RE: Revised Composite Benefit Rates (CBR)

This is an annual notice about updated Composite Benefits Rates (CBR) to use for budget planning, projections and for benefits. UCOP has recalculated CBRs for the 2022-23 fiscal year, and most rates are being reduced. The new rates will be applicable to the upcoming fiscal year but are currently pending federal approval. We are sharing them with you in advance to facilitate more accurate budgeting.

<b>For Employees with Full Benefits</b>	<b>FY 23 CBR</b>
<b>Faculty</b>	<b>32.7%</b>
<b>HComp-MSPPhys2-LawFac-Nurse-Police</b>	<b>24.4%</b>
<b>Post Doc</b>	<b>19.8%</b>
<b>Staff Exempt + Other Academic</b>	<b>41.3%</b>
<b>Staff Non-Exempt + Food-Custodian_Grounds-BMW1</b>	<b>48.7%</b>
<b>For Employees with Less than Full Benefits and Students</b>	
<b>Faculty Summer Salary</b>	<b>6.6%</b>
<b>Student and No Benefits + Partial Benefit Eligibility</b>	<b>2.6%</b>

Note that some of the rates have been consolidated to allow the campus to avoid volatile ups and downs in certain groups.

FY22 CBR Categories	FY23 Proposed CBR Categories
Faculty	Faculty
HComp-MSPPhys2-LawFac-Nurse-Police	HComp-MSPPhys2-LawFac-Nurse-Police
Post Doc	Post Doc
Faculty Summer Salary	Faculty Summer Salary
Staff Exempt	Staff Exempt + Other Academic
Other Academic	
Staff Non-Exempt	Staff Non-Exempt + Food-Custodian-Grounds-BMW1
Food-Custodian-Grounds-BMW1	
Student and No Benefits	Students and No Benefits + Partial Benefit Eligibility
Partial Benefit Eligibility	

Please forward this information to faculty members and staff involved with contract and grant proposal development to begin using the rates immediately.

Please refer to the UCPath Composite Benefit Rate section of the Accounting & Fiscal Services website (<https://accounting.uci.edu/cost-analysis/composite-benefit-rates.html>) for additional information and answers to frequently asked questions. Note that the CBR page will be updated periodically as more information is available.

If you have questions please contact Maria Gorginova, Associate Director, Cost Accounting, in Accounting & Fiscal Services.

Sincerely,

Richard L Coulon  
Interim Chief Financial Officer and Vice Chancellor

Cc: Chancellor Gillman  
Provost and Executive Vice Chancellor Stern  
Associate Chancellor and Chief of Staff Walton  
Associate Provost and Chief of Staff Brigman  
Assistant/Associate Deans  
Assistant/Associate Vice Chancellors  
Director, Intercollegiate Athletics  
Financial Officers

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN: 95-6006143

DATE: 10/12/2018

ORGANIZATION:

FILING REF.: The preceding  
agreement was dated  
05/03/2017

University of California (UCLA)  
 Los Angeles Campus  
 10920 Wilshire Blvd., Ste. 600  
 Los Angeles, CA 90024

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)	
<u>EFFECTIVE PERIOD</u>					
<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2016	06/30/2017	54.00	On-Campus	Organized Research
PRED.	07/01/2017	06/30/2018	55.00	On-Campus	Organized Research
PRED.	07/01/2018	06/30/2019	56.00	On-Campus	Organized Research
PRED.	07/01/2016	06/30/2019	26.00	Off-Campus	Organized Research
PRED.	07/01/2016	06/30/2017	37.00	On-Campus	Instruction
PRED.	07/01/2017	06/30/2019	40.00	On-Campus	Instruction
PRED.	07/01/2016	06/30/2019	26.00	Off-Campus	Instruction
PRED.	07/01/2016	06/30/2017	35.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2017	06/30/2019	38.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2016	06/30/2019	26.00	Off-Campus	Other Sponsored Activities
PRED.	07/01/2016	06/30/2019	8.00	Off-Campus	IPA (1)

EFFECTIVE PERIOD

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2016	06/30/2017	54.00	On-Campus	Organized Research
PRED.	07/01/2017	06/30/2018	55.00	On-Campus	Organized Research
PRED.	07/01/2018	06/30/2019	56.00	On-Campus	Organized Research
PRED.	07/01/2016	06/30/2019	26.00	Off-Campus	Organized Research
PRED.	07/01/2016	06/30/2017	37.00	On-Campus	Instruction
PRED.	07/01/2017	06/30/2019	40.00	On-Campus	Instruction
PRED.	07/01/2016	06/30/2019	26.00	Off-Campus	Instruction
PRED.	07/01/2016	06/30/2017	35.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2017	06/30/2019	38.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2016	06/30/2019	26.00	Off-Campus	Other Sponsored Activities
PRED.	07/01/2016	06/30/2019	8.00	Off-Campus	IPA (1)

ORGANIZATION: University of California (UCLA) Los Angeles Campus

AGREEMENT DATE: 10/12/2018

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PROV.	07/01/2019	Until Amended			Use same rates and conditions as those cited for fiscal year ending June 30, 2019

**\*BASE**

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and subgrants and subcontracts up to the first \$25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subgrant and subcontract in excess of \$25,000.

NOTE: See Special Remarks regarding Genomic Arrays.

(1) Intergovernmental/Personnel Act Agreement

ORGANIZATION: University of California (UCLA) Los Angeles Campus

AGREEMENT DATE: 10/12/2018

**SECTION I: FRINGE BENEFIT RATES\*\***

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
FIXED	10/1/2018	6/30/2019	4.80	All	Limited Benefits Eligibility
FIXED	10/1/2018	6/30/2019	31.70	All	Faculty
FIXED	10/1/2018	6/30/2019	27.50	All	Post-Doc. Scholars
FIXED	10/1/2018	6/30/2019	24.80	All	Health Sciences Senior Faculty
FIXED	10/1/2018	6/30/2019	42.50	All	Academic & Exempt Staff
FIXED	10/1/2018	6/30/2019	51.60	All	Non-Exempt Staff
FIXED	7/1/2019	6/30/2020	4.90	All	Limited Benefits Eligibility
FIXED	7/1/2019	6/30/2020	32.30	All	Faculty
FIXED	7/1/2019	6/30/2020	28.40	All	Post-Doc. Scholars
FIXED	7/1/2019	6/30/2020	25.20	All	Health Sciences Senior Faculty
FIXED	7/1/2019	6/30/2020	43.40	All	Academic & Exempt Staff
FIXED	7/1/2019	6/30/2020	52.80	All	Non-Exempt Staff
PROV.	7/1/2020	6/30/2021			Use same rates and conditions as those cited for fiscal year ending June 30, 2020.

\*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:

Salaries and wages excluding vacation and catastrophic leave.

ORGANIZATION: University of California (UCLA) Los Angeles Campus

AGREEMENT DATE: 10/12/2018

---

**SECTION II: SPECIAL REMARKS**

---

**TREATMENT OF FRINGE BENEFITS:**

Effective 10/01/2018, the fringe benefits (other than Student Tuition Remission) is charged using the rate(s) listed in the Fringe Benefits section of this Agreement. The fringe benefit(s) included in the rate(s) are listed below.

Effective 10/01/2018, the following fringe benefits are included in the fringe benefit rate(s): BENEFITS ADMINISTRATION; MEDICAL, DENTAL, DISABILITY, LIFE, UNEMPLOYMENT, VISION, AND WORKERS' COMPENSATION INSURANCE; EMPLOYEE SUPPORT PROGRAMS; FICA AND MEDICARE TAXES; INCENTIVE AWARD PROGRAMS; RETIREE HEALTH BENEFITS; AND RETIREMENT BENEFITS.

This organization charges the actual costs of Student Tuition Remission per employee direct to Federal projects for all Student employees whose salary and wages is charged direct to Federal projects.

Prior to 10/01/2018, the fringe benefits are specifically identified to each employee and are charged individually as direct costs. The directly claimed fringe benefits are listed below.

The following fringe benefits are treated as direct costs: FICA, WORKERS COMPENSATION, HEALTH PLAN CONTRIBUTION, INCENTIVE AWARD PROGRAM, DISABILITY/LIFE/UNEMPLOYMENT/DENTAL INSURANCE, EMPLOYEE SUPPORT PROGRAM, AND RETIREMENT SYSTEM CONTRIBUTION.

**TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

ORGANIZATION: University of California (UCLA) Los Angeles Campus

AGREEMENT DATE: 10/12/2018

---

**DEFINITION OF EQUIPMENT**

Equipment is defined as tangible nonexpendable personal property having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit.

**DEFINITION OF OFF-CAMPUS RATE**

The off-campus rate is applicable to those projects conducted at facilities not owned or leased by the University. However, if the project is conducted in leased space and lease costs are directly charged to the project, then the off-campus rate must be used.

**PROJECTS CONDUCTED ENTIRELY ON-CAMPUS OR ENTIRELY OFF-CAMPUS:**

Projects conducted entirely on-campus or entirely off-campus will be applied the on-campus or off-campus rate respectively.

**PROJECTS CONDUCTED PARTIALLY OFF-CAMPUS AND PARTIALLY ON-CAMPUS:**

If the project involves work at both on-campus and off-campus sites, either the on-campus or off-campus rate generally should be applied, consistent with where the majority of the work is to be performed. Salary cost is generally accepted as a measure of work performed in terms of the total project.

**USE OF BOTH ON-CAMPUS AND OFF-CAMPUS RATES**

The use of both on-campus and off-campus rates for a given project may be justified if both of the respective rates can clearly be identified with a significant portion of salaries and wages of the project. For purposes of this provision, significant is defined as approximately 25% or more of the total costs and a project's total salary and wage costs exceed \$250,000.

**SPECIAL REMARKS:** The NIH Policy on indirect costs pertaining to Genomic Arrays (NOT-OD-10-097) is effective as of 05/13/10.

**NEXT PROPOSAL DUE DATE**

An F&A proposal based on actual costs for fiscal year ending 06/30/18, will be due no later than 12/31/18. A fringe benefits proposal based on actual costs for fiscal year ending 06/30/19, will be due no later than 12/31/19.

ORGANIZATION: University of California (UCLA) Los Angeles Campus  
 AGREEMENT DATE: 10/12/2018

---

### **SECTION III: GENERAL**

---

**A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

**B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

**C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

**D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

**E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of California (UCLA) Los Angeles Campus

(INSTITUTION)

Nathan Brostrom

(NAME)

EVP - Chief Financial Officer

(TITLE)

10/26/2018

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Arif M. Karim -S

Digitally signed by Arif M. Karim -S  
 DN: c=US, o=US Government, ou=HHS,  
 ou=PSC, ou=People, cn=Arif M. Karim -S,  
 0.9.2242.1920300 100.1 i=2000212895  
 Date: 2018.10.16 13:51:52 -05'00'

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

10/12/2018

(DATE) 7008

HHS REPRESENTATIVE: Janet Turner

Telephone: (415) 437-7820

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN: DATE:06/09/2021

ORGANIZATION:  
 University of Hawaii  
 2440 Campus Road  
 Box 368  
 Honolulu, HI 96822

FILING REF.: The preceding  
 agreement was dated  
 06/09/2020

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

**EFFECTIVE PERIOD**

<b>TYPE</b>	<b>FROM</b>	<b>TO</b>	<b>RATE (%)</b>	<b>LOCATION</b>	<b>APPLICABLE TO</b>
PRED.	07/01/2017	06/30/2019	41.50	On-Campus	Organized Res.
PRED.	07/01/2019	06/30/2020	43.00	On-Campus	Organized Res.
PRED.	07/01/2020	06/30/2021	44.50	On-Campus	Organized Res.
PRED.	07/01/2021	06/30/2022	45.00	On-Campus	Organized Res.
PRED.	07/01/2022	06/30/2023	45.50	On-Campus	Organized Res.
PRED.	07/01/2017	06/30/2019	24.00	Off-Campus	Organized Res.
PRED.	07/01/2019	06/30/2023	26.00	Off-Campus	Organized Res.
PRED.	07/01/2017	06/30/2019	40.00	On-Campus	Instruction
PRED.	07/01/2019	06/30/2023	45.00	On-Campus	Instruction
PRED.	07/01/2017	06/30/2023	26.00	Off-Campus	Instruction
PRED.	07/01/2017	06/30/2019	32.00	On-Campus	Other Sponsored Act
PRED.	07/01/2019	06/30/2023	36.50	On-Campus	Other Sponsored Act
PRED.	07/01/2017	06/30/2023	26.00	Off-Campus	Other Sponsored Act
PRED.	07/01/2017	06/30/2019	3.30 (A)		Direct Projects
PRED.	07/01/2019	06/30/2023	3.10 (A)		Direct Projects
PRED.	07/01/2017	06/30/2019	6.60 (B)		(C)

ORGANIZATION: University of Hawaii

AGREEMENT DATE: 6/9/2021

<u>TYPE</u>	<u>FROM</u>	<u>TO</u>	<u>RATE (%)</u>	<u>LOCATION</u>	<u>APPLICABLE TO</u>
PRED.	07/01/2019	06/30/2023	8.00	(B)	(C)
PRED.	07/01/2017	06/30/2019	54.00	(D)	Organized Res.
PRED.	07/01/2019	06/30/2020	55.00	(D)	Organized Res.
PRED.	07/01/2020	06/30/2021	55.50	(D)	Organized Res.
PRED.	07/01/2021	06/30/2022	56.00	(D)	Organized Res.
PRED.	07/01/2022	06/30/2023	56.50	(D)	Organized Res.
PRED.	07/01/2018	06/30/2019	4.30	Off-Campus	(E)
PRED.	07/01/2019	06/30/2023	1.80	Off-Campus	(E)
PRED.	07/01/2017	06/30/2023	9.00	Off-Campus	(F)
PROV.	07/01/2023	Until Amended		(G)	

**\*BASE**

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of \$25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

ORGANIZATION: University of Hawaii

AGREEMENT DATE: 6/9/2021

**SECTION I: FRINGE BENEFIT RATES\*\***

<b><u>TYPE</u></b>	<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>RATE (%)</u></b>	<b><u>LOCATION</u></b>	<b><u>APPLICABLE TO</u></b>
FIXED	7/1/2021	6/30/2022	0.75 (1)		UH (A)
FIXED	7/1/2021	6/30/2022	0.80 (1)		UH (B)
FIXED	7/1/2021	6/30/2022	1.49 (1)		UH (C)
FIXED	7/1/2021	6/30/2022	1.25 (2)		RCUH (A)
FIXED	7/1/2021	6/30/2022	1.86 (2)		RCUH (B)
FIXED	7/1/2021	6/30/2022	2.19 (2)		RCUH (C)

**\*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:**

Salaries and Wages.

(1) University of Hawaii (UH)

(2) Research Corporation of the University of Hawaii (RCUH)

UH (A) Student Employees (including Graduate Assistants)

UH (B) Faculty, Staff, not eligible for vacation

UH (C) Faculty and Staff, eligible for vacation

RCUH (A) Regular Status Employees, less than 50% FTE and all other non-Regular status employees

RCUH (B) Regular Status Employees, 50% FTE or greater but less than 13 months of services

RCUH (C) Employee, 50% FTE or greater and 13 months or more of service

ORGANIZATION: University of Hawaii

AGREEMENT DATE: 6/9/2021

---

## **SECTION II: SPECIAL REMARKS**

---

### **TREATMENT OF FRINGE BENEFITS:**

The fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate (s) are listed below.

UNIVERSITY OF HAWAII (UH) (1) :

UH Fringe Benefit Rates: UNEMPLOYMENT, WORKER'S COMPENSATION, AND TERMINAL VACATION PAYOUT RESERVE.

STATE OF HAWAII Fringe Benefit Rates: FICA, PENSION ACCUMULATION, PENSION ADMINISTRATION, RETIREE HEALTH INSURANCE, OTHER POST-EMPLOYMENT BENEFITS.

The following fringe benefits are specifically identified to each UH employee and are charged individually as direct costs: HEALTH INSURANCE AND GROUP LIFE INSURANCE.

RESEARCH CORPORATION OF THE UNIVERSITY OF HAWAII (RCUH) (2) :

RCUH Fringe Benefit Rates: UNEMPLOYMENT, TERMINAL UNUSED SICK LEAVE PARTIAL PAYOUT RESERVE, AND TERMINAL VACATION PAYOUT RESERVE.

The following fringe benefits are specifically identified to each RCUH employee and are charged individually as direct costs: FICA, HEALTH INSURANCE (MEDICAL AND DENTAL), FLEXIBLE SPENDING ACCOUNT (FSA), RETIREMENT, GROUP LIFE INSURANCE, LONG TERM DISABILITY, LONG TERM CARE, WORKERS COMPENSATION.

### **TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

OFF=CAMPUS DEFINITION: For all activities performed in facilities not owned by the institution and to which either rent is directly allocated to the project(s), or activities are conducted in third party space rent free, the off-campus rate will apply. Actual costs will be apportioned between on-campus and off-campus components. Each portion will bear the appropriate rate according to location and purpose. In the case that one rate is required by the sponsor, if more than 50% of a project is performed off-site, the off-site rate will apply.

---

ORGANIZATION: University of Hawaii

AGREEMENT DATE: 6/9/2021

---

DEFINITION OF EQUIPMENT

Equipment is defined as tangible nonexpendable personal property (including information technology systems) having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit.

This rate agreement updates the fringe benefits only.

NEXT PROPOSAL DUE DATE

An indirect cost proposal based on actual costs for FYE 06/30/22 is due by 12/31/22 and fringe benefit proposal based on actual costs for FYE 06/30/21 is due by 12/31/21.

ORGANIZATION: University of Hawaii

AGREEMENT DATE: 6/9/2021

**SECTION III: GENERAL****A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

**B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

**C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

**D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

**E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of Hawaii

(INSTITUTION)

(SIGNATURE)

Vassilis L. Syrmos

(NAME)

Vice President for Research and Innovation

(TITLE)

6/23/2021

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Arif M. Karim -S

Digitally signed by Arif M. Karim

Date: 2021.06.21 13:15:44 -05'00'

(SIGNATURE)

Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

6/9/2021

(DATE) 7038

HHS REPRESENTATIVE: Jeanette Lu

Telephone:

(415) 437-7820

**COLLEGES AND UNIVERSITIES RATE AGREEMENT**

EIN:

DATE: 07/06/2021

ORGANIZATION:

FILING REF.: The preceding  
agreement was dated  
07/13/2020

University of Nevada, Las Vegas  
 4505 Maryland Parkway  
 P.O. Box 451004  
 Las Vegas, NV 89154-1004

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

**SECTION I: INDIRECT COST RATES**

RATE TYPES:	FIXED	FINAL	PROV. (PROVISIONAL)	PRED. (PREDETERMINED)
-------------	-------	-------	---------------------	-----------------------

**EFFECTIVE PERIOD**

<b>TYPE</b>	<b>FROM</b>	<b>TO</b>	<b>RATE (%)</b>	<b>LOCATION</b>	<b>APPLICABLE TO</b>
PRED.	07/01/2016	06/30/2017	48.00	On-Campus	Organized Research
PRED.	07/01/2017	06/30/2021	49.50	On-Campus	Organized Research
PRED.	07/01/2016	06/30/2021	26.00	Off-Campus	Organized Research
PRED.	07/01/2016	06/30/2021	48.00	On-Campus	Instruction
PRED.	07/01/2016	06/30/2021	26.00	Off-Campus	Instruction
PRED.	07/01/2016	06/30/2021	36.00	On-Campus	Other Sponsored Activities
PRED.	07/01/2016	06/30/2021	26.00	Off-Campus	Other Sponsored Activities
PROV.	07/01/2021	Until Amended	(1)		

**\*BASE**

ORGANIZATION: University of Nevada, Las Vegas

AGREEMENT DATE: 7/6/2021

---

Modified total direct costs, consisting of all salaries and wages, fringe benefits, materials, supplies, services, travel and up to the first \$25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subaward in excess of \$25,000.

- (1) Use same rates and conditions as those cited for fiscal year ending June 30, 2021.

ORGANIZATION: University of Nevada, Las Vegas

AGREEMENT DATE: 7/6/2021

**SECTION I: FRINGE BENEFIT RATES\*\***

<b><u>TYPE</u></b>	<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>RATE (%) LOCATION</u></b>	<b><u>APPLICABLE TO</u></b>
FIXED	7/1/2021	6/30/2022	29.40 All	Admin./Acad. Faculty
FIXED	7/1/2021	6/30/2022	43.40 All	Classified
FIXED	7/1/2021	6/30/2022	10.40 All	Graduate Students
FIXED	7/1/2021	6/30/2022	19.00 All	Letter of Appointment
FIXED	7/1/2021	6/30/2022	4.30 All	Wages
PROV.	7/1/2022	Until amended		Use same rates and conditions as those cited for fiscal year ending June 30, 2022.

\*\* DESCRIPTION OF FRINGE BENEFITS RATE BASE:

Salaries and wages.

ORGANIZATION: University of Nevada, Las Vegas

AGREEMENT DATE: 7/6/2021

---

## **SECTION II: SPECIAL REMARKS**

---

### **TREATMENT OF FRINGE BENEFITS:**

The fringe benefits are specifically identified to each employee and are charged individually as direct costs. The directly claimed fringe benefits are:

SUI, HEALTH INSURANCE, NEVADA INDUSTRIAL COMPENSATION, AND RETIREMENT.

Effective July 1, 2019, the fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate(s) are listed below:

FICA/MEDICARE, UNEMPLOYMENT INSURANCE, NEVADA INDUSTRIAL INSURANCE, HEALTH INSURANCE, GRADUATE INSURANCE, TERMINAL LEAVE, RETIRED EMPLOYEES GROUP INSURANCE ASSESSMENT (REGIA), AND RETIREMENT.

### **TREATMENT OF PAID ABSENCES**

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

### **DEFINITION OF EQUIPMENT**

Equipment means tangible personal property (including information technology systems) having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds \$5,000.

### **DEFINITION OF OFF-CAMPUS ACTIVITIES**

Off-campus activities are those activities that operate entirely off University property (either owned, leased or rented) and do not increase, nor decrease the costs of those activities (i.e., operations and maintenance) that would be affected had the activities been operated on property maintained and/or depreciated by the University.

### **NEXT PROPOSAL DUE DATES**

A Fringe Benefits Costs proposal based on actual costs for fiscal year ending 06/30/2021, will be due no later than 12/31/2021.

This rate agreement updates the fringe benefits rates only.

ORGANIZATION: University of Nevada, Las Vegas

AGREEMENT DATE: 7/6/2021

**SECTION III: GENERAL****A. LIMITATIONS:**

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

**B. ACCOUNTING CHANGES:**

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

**C. FIXED RATES:**

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

**D. USE BY OTHER FEDERAL AGENCIES:**

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

**E. OTHER:**

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:

University of Nevada, Las Vegas

(INSTITUTION)

**Chris Viton**Digitally signed by Chris Viton  
Date: 2021.07.08 19:52:55 -07'00'

(SIGNATURE)

**Chris Viton**

(NAME)

**AVP Financial Services & Controller**

(TITLE)

**July 8, 2021**

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

**Arif M. Karim -S**Digitally signed by Arif M. Karim  
Date: 2021.07.07 14:24:10 -05'00'

(SIGNATURE)

**Arif Karim**

(NAME)

Director, Cost Allocation Services

(TITLE)

7/6/2021

(DATE) 7094

HHS REPRESENTATIVE: **Jeffrey Warren**

Telephone:

**(415) 437-7820**

## **ASSURANCES - NON-CONSTRUCTION PROGRAMS**

**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327- 333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93- 205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL Steven L. Misuraca	* TITLE Contract and Grant Officer
* APPLICANT ORGANIZATION University of Southern California	* DATE SUBMITTED 08-22-2022